

PROF. LOUIS H. SCHOLL,  
(OF TEXAS)

will begin a series of  
articles next week on

"Bee-Keeping in the Southwest"

# American

MASSACHUSETTS  
AGRICULTURAL  
COLLEGE



# Bee Journal

45th Year.

CHICAGO, ILL., JAN. 26, 1905.

No. 4.

WEEKLY



"LAKE PHALEN APIARY", AN OUT-APIARY OF H. G. ACKLIN,  
OF RAMSEY CO., MINN.

# FOR 1905.

We are always studying how to improve our goods. That's why we are leaders. No detail is too small for improvement. No expenses are spared to experiment and build new machinery. There are many advantages in buying Root's Goods. You can't get good goods cheaper; you save freight and time, and you are always sure of the very latest in apiculture. Below are our improvements for 1905.

## Honey Extractors

The honey extractors of 1905 have steel stampings in many places where gray iron castings were used formerly. These stampings are so ribbed and braced that the construction of the baskets will be much stiffer than formerly with no possibility of any of the parts breaking.

## Wire Imbedder

Our new spur wire imbedder is a great improvement over the old one. Although it costs 20 cents and the old one sells for only 10 cents, it is 10 times better. It does very neat, pretty work and the special construction of the teeth with the groove makes it easy to follow the wire during the process of imbedding.

## Perforated Zinc

A complete new set of dies and press have been made during 1904 for turning out perforated zinc, so that our 1905 product will be even better than before.

## Smokers

Some minor improvements have been made in our smokers by which the blast will be increased and the general construction throughout stiffened. A very neat and strong brace is placed in such position that the legs supporting the cup or stove can not be twisted or bent out of shape without crushing the whole smoker.

## Fences

Some of our fences for the supers will be nailed as well as glued. This will enable the user to clean off the propolis by immersing them in boiling water, a fact which will be appreciated by many.

## Root's Automatic Extractor

We have got it at last. An automatic reversible honey-extractor that will reverse the pockets while in motion by simply pressing on a lever. The extractors are no larger than the Cowans, and reverse without bang or slam, provided the directions are followed. They are equipped with street-car band-brake, noiseless gearing, gearing on top of the reel out of the honey, and out of the way of putting in and removing the combs. We have the 4-frame size all ready for delivery. Six-frame, 8-frame, and 9-frame sizes will be ready shortly. Price will be only \$2.00 above the regular price for 2, 4, 6, and 8 frame Cowan extractors, respectively.

## Wax-Tube

The Van Deusen wax-tube fastener is made of one piece of brass tubing drawn down to a point. It is a much neater and better tool than the one sold last year.

## German Wax-Press

The German wax-press is now so improved that it has a threefold use. First, as a wax-rendering device and press to squeeze out slumgum clear of wax. Second, as a press for squeezing honey out of cappings, bits of bur-combs, chunk honey and the like. Third, as an uncapping can for uncapping combs preparatory to extracting. This last feature will prove invaluable because the cappings will drop into the basket, and when the uncapping is done the cappings can be squeezed until they are dry, the honey running out at the spout. Three machines for the price of one. And our price has been reduced to \$12.00.

## Bee-Veil

Our bee-veil for 1905 will have rubber cord sewed in the bottom edge so that the top as well as the bottom will be elastic. If the directions are followed the edge of the veil can be made bee-tight around the waist or coat, effectually protecting the wearer. We will still furnish veils with silk binding and when called for can supply them.

## Cover

The Excelsior cover will look about the same as before except that its construction will be simplified and strengthened, making it better in every way to withstand extremes of hot and dry weather. It will be used on all our hives including the Danzenbaker, as it has stood the test of many years, and for a general purpose cover we know of nothing better.

Ask for our Catalog. A postal brings it.

# THE A. I. ROOT COMPANY,

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## MEDINA, OHIO.

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# ESTABLISHED IN 1861 AMERICAN THE OLDEST BEE-PAPER IN AMERICA BEE JOURNAL

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GEORGE W. YORK, Editor.

CHICAGO, ILL, JAN. 26, 1905.

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## Editorial Notes and Comments

### Lawsuits and the National Association.

The Board of Directors of the National have decided that "in case of litigation hereafter the financial aid extended by the National Bee-Keepers' Association shall not exceed the sum of one-half the expense incurred in such case".

That will allow more attention to adulteration, and possibly the time may not be far distant when something may be done in general advertising of honey. Speed the day!

### Selling Small Crops of Honey.

One of the large honey commission dealers once told us that he did not solicit small shipments of honey. He thought that, for various reasons, such could better be disposed of nearer home, and often so advised when they were offered to him.

But we find there are quite a number of bee-keepers who seem to have no little difficulty in selling their honey in their home or near-by market.

Then, again, there are others who could sell more than they can produce, right in their home market. We would like to invite this latter class to tell how they do it. It is not necessary to tell in what particular town you have worked up a good demand for your honey—simply tell *how* you do it. By so doing you will in a measure repay the debt you owe to others who perhaps have aided you with a description of their methods.

There must be many who have been successful in selling their own crops of honey to private families, and at paying prices. Can we not hear from some of them?

### Worker-Eggs in Drone-Cells.

In the British Bee Journal G. B. asks: "When worker-eggs are deposited in drone-cells do they develop, and, if so, are the resultant workers as large as drones"? To which that journal replies: "A fertile queen never deposits worker-eggs in drone-cells, therefore, the question about 'resultant workers' can not arise".

Ordinarily neither a fertile queen nor any other kind of a queen lays worker-eggs in drone-cells; but in exceptional cases a queen lays worker-eggs in drone-cells, and from such eggs are developed worker-bees just the same as if the

eggs had been laid in worker-cells. A special case may be mentioned: About 30 years ago R. R. Murphy sent to the office of the American Bee Journal a piece of comb containing sealed brood, the comb being unquestionably drone-comb; and notwithstanding the journey through the mail young workers emerged that were not noticeably different in size or otherwise from workers in general.

It has been explained that it sometimes occurs that when a piece of drone-comb happens to come in the middle of the brood-nest of a colony with a vigorous young laying queen, the bees deposit wax on the edges of the cell-walls, making the diameter at the mouth of the cell the same as the diameter of a worker-cell, such cells being then occupied with worker-brood.

### Felt for Winter Packing.

This is recommended in Praktischer Wegweiser as being better than straw or moss covering, and no more expensive.

### Does White Clover Winter-Kill?

Virgil Weaver asserts in Gleanings in Bee-Culture—apparently endorsed by that paper—that white clover never winter-kills; that in supposed cases of winter-killing the plants die from drouth, such death being in no way affected by the cold. Can it be possible that the general belief is so far out of the way?

### Columbus-Comb of Doubtful Utility.

The new foundation with tin-foil base, made in Germany and called "Kolumbuswabe" (Columbus-comb), was heralded as a great acquisition; but reports of success in using it are singularly lacking. Foerster Klauke, in Praktischer Wegweiser, reports having tried a hive filled with the new foundation, also single frames put in the middle of the brood-nest, but the bees made such bad work with it that he concludes by saying that it has only given him something more for the lumber-room.

### The Bee-Keepers' Experience Meeting.

Personal experiences are nearly always interesting, and often most profitable. Bee-keepers, we think, are famous, as a rule, for their great unselfishness in the line of imparting freely the results of their work with bees. We dare say there is scarcely another vocation in which so many have been so kind and so generous in this regard. We have often marvelled at it.

And the "experience meeting" must ever be a place of helpfulness, as each contributes to the general fund of information or encouragement. The bee-papers are really places where are recorded the experiences of those who



have been keeping bees for a longer or shorter time. Some who arise and speak (or write) as in a bee-keepers' convention, have had a larger and perhaps a more varied experience, hence their ability to impart more information. But taking together all that is written (or printed) in any one issue of a bee-paper, it makes a nice "apicultural meal". And where a bee-keeper takes several of the bee-papers (as all should do if they wish to gain every advantage to be had from bee-literature), he will have several such "square meals" during the month.

Now, as ye have enjoyed and been profited by reading the experiences of others, so should ye contribute your experience in return. No one bee-keeper knows it all. But by each adding a little to the general fund of bee-lore, so will all be helped on to success.

#### The National Pure Food Bill.

We have received the following, and also a newspaper clipping, from E. Woodall, of Charlevoix Co., Mich., referring to the Pure Food Bill before Congress in Washington:

EDITOR YORK:—I notice the daily press states that the Whiskey Trust has held up the Pure Food Bill which passed the House last session, and is now in the United States Senate on the shelf and no prospects of the Senate taking it up this sitting. Give bee-keepers another jog to write their United States senators, and put it through.

E. WOODALL.

The clipping mentioned reads as follows, sent out by the Associated Press:

WASHINGTON, Jan. 9.—Friends of the Pure Food Bill, passed by the House and now pending in the Senate, and especially members of the International Pure Food Congress, believe the whiskey rectifiers of the country have killed the measure so far as the present session is concerned.

It is asserted that a powerful lobby, representing the whiskey rectifiers of the country, who, according to Dr. H. W. Wiley, produce 85 percent of the whiskey drunk in America, has been on the ground ever since the session began. The rectifiers oppose the bill because it would compel them to label their product as adulterated whiskey.

Why not all bee-keepers write at once to their senators at Washington, D. C., to take up that Pure Food Bill and pass it during this session of Congress? It ought to be done for the best interest of all the people, for all must eat, and should be assured that they are buying pure food.



### Miscellaneous News & Items

The First Double Number of the American Bee Journal for 1905 is before you. In it is completed the report of the St. Louis convention of the National Bee-Keepers' Association. It is a rather long report, but will well repay a close reading. Especially is the paper by Mr. Frank Benton very interesting, as it gives a careful, though condensed, review of the work done in the interest of bee-keeping by our National Government. We regretted the necessity of dividing his paper, a part of it appearing in last week's number.

Geo. A. Ohmert, of Dubuque Co., Iowa, writing us Jan. 10, had this to say:

I had a \$500 fire the other day, burning farm tools and gasoline engine, but it did not burn any bees.

The weather is pretty cold here, being 14 degrees below zero this morning. Bees in the cellar seem to be all right so far.

GEO. A. OHMERT.

The Washington State Association meets in North Yakima, Wash., Feb. 8, 9 and 10, 1905. Among the subjects on the program are the following:

- "How to Market Honey"—Isaac Hayes.
- "Food Value of Honey as Compared with Other Principal Foods"—Prof. G. L. Tanzer, Analytical Chemist.
- "The Value of Bees to the Orchard and the Time to Cut Alfalfa"—W. S. Lawrence, Assistant Botanist of Washington State Agricultural College.
- "What We Should Do at Lewis and Clark Fair"—Legh R. Freeman, editor Northwest Farm and Home.
- "How to Start an Apiary"—Robert Cissna.
- "Profits in Bee-Keeping"—Prof. F. A. Huntley.
- "How State Associations Should Buy Supplies"—Ernest R. Root.
- "Bee-Keeping in Eastern Washington"—R. W. Keisling.
- "The Irrigator's Bees"—Dr. F. S. Hedger.
- "History of the Honey-Bee"—Prof. G. A. Balmer.
- "The Various Ways of Marketing Honey"—Anson White.
- "Washington Bee-Pastures, and How to Maintain Them"—C. Rose.
- "Bee-Keeping in Yakima County"—Hiram H. Cole.
- "Bee-Keeping in Western Washington"—Thomas Wickersham.
- "The Brotherhood of Bee-Keepers"—Rev. J. P. Berg.

Judging from the foregoing list of papers to be read, any bee-keeper in that region that fails to attend will miss a treat. Such a list may also help other bee-keepers' associations when preparing their programs.

"Bee-Pranks" is the title of a neat 20-page pamphlet just issued by the G. B. Lewis Co. Its preface contains these words: "Compiled from clippings taken from newspapers published all over the United States, and therefore gives as nearly as possible a complete and authentic daily record of common, uncommon, strange and unique happenings in the busy life of the bee during the year just passed". So far as we know it is the only thing of its kind ever published. It certainly is an original piece of work, and attractively gotten up by White's Class Advertising Co., of Chicago. It is mailed for 12 cents in stamps by the G. B. Lewis Co., Watertown, Wis.

Henry Field, Seedsman, of Shenandoah, Iowa, has sent us his annual catalog for 1905. At the top of the first page it reads: "The seeds that yield are sold by Field". This is also a case where a Field is in the field to sell honest and true-to-name seeds. His specialty is seed-corn, but he has many others. His advertisement appears in another column this week.



### Opinions of Some Experts

#### Which Finished First, Bait-Sections or Sections with Full-Sheet Foundation?

21.—When bait-combs (that is, unfinished sections of the previous year) are used in a super along with sections filled with foundation, which will be finished first, the baits or the sections with foundation?

- ADRIAN GETAZ (Tenn.)—The baits.
- C. H. DIBERN (Ill.)—The bait-sections, every time.
- R. L. TAYLOR (Mich.)—The sections with foundation, as a rule.
- PROF. A. J. COOK (Calif.)—Usually there will be little difference.
- P. H. ELWOOD (N. Y.)—With us the baits are usually finished first, unless in the extreme corners of the super.



E. S. LOVESEY (Utah)—The bait-sections, at least this is my experience.

JAS. A. STONE (Ill.)—Never had any good results from so doing, so I quit it.

C. P. DADANT (Ill.)—There will not be much difference when they are side by side.

N. E. FRANCE (Wis.)—Generally bait-sections, but they will not be as white when finished.

O. O. POPPLETON (Fla.)—It is too many years since I produced section honey to remember about this.

DR. J. P. H. BROWN (Ga.)—Work will always be started in the bait-combs first, and they will usually be finished first.

J. M. HAMBAUGH (Calif.)—This is largely owing to the strength of the colony. The baits will be accepted first, as a rule.

REV. M. MAHIN (Ind.)—I have not had enough experience to speak authoritatively, but I think the bait-sections will be finished first.

DR. C. C. MILLER (Ill.)—Baits, every time, in this locality. Possibly baits might be so objectionable in some way that the bees would prefer the foundation.

G. M. DOOLITTLE (N. Y.)—Depends where baits are placed. If in the center, the baits will be finished first. If baits are in the corners or outside rows, then about alike.

WM. ROHRIG (Ariz.)—I don't know. If I were permitted to guess I should say if the bait-combs were nice clean ones, placed in the center of the super, they would be finished first.

S. T. PETTIT (Ont.)—If the bees are on the weak side, nad the flow slack, the bait-sections. If the bees are in good condition, and the flow good, there will be no appreciable difference.

R. C. AIKIN (Colo.)—Baits, under unfavorable conditions of strength of colony and flow; foundation first when we have rousing colonies, and the nectar just rolls in. Strange, but true.

G. W. DEMAREE (Ky.)—As far as my observation extends the partly-built combs used as inducers take the lead, at least at the start. As to actual finish, my attention has not been called to that point.

L. STACHELHAUSEN (Tex.)—During a slow or moderate honey-flow the bait-combs will be finished first. During a good honey-flow there may be no difference, and sometimes even foundation may be finished first.

EUGENE SECOR (Iowa)—If honey is coming in slowly the baits will be finished first, and if the crop is short sometimes they will be the only ones finished. If the flow is generous the others will be completed as soon.

E. D. TOWNSEND (Mich.)—Bait-combs, if in the center of the super; if in the corners, as we use them, a few of the cells on the outside lower edge of the bait-section will be unsealed when the rest of the super is ready to come off.

JAMES A. GREEN (Colo.)—If the honey-flow is moderate, or only ordinarily good, the bait-sections will be finished first. But in a really good honey-flow the sections having full sheets of foundation will usually be finished first.

E. WHITCOMB (Nebr.)—I have noticed that the new combs with foundation are usually finished first. The bees do dislike to finish up an old last year's job, and the result is never satisfactory to the customer. I have never thought advisable to put unfinished sections back into the hive. If we can not get finished sections it is better to work for extracted honey.

C. DAVENPORT (Minn.)—It depends upon the strength of the colony, the flow, kind of bees, and where in the super the baits are placed. In a good flow a strong colony that has considerable black or German blood will finish sections filled with foundation as soon as they will baits. Although outside the question, I would like to say that these bait-sections are never first-class comb honey when finished.

**Some Facts About Honey and Bees.**—This is the subject of an article written by Mr. J. E. Johnson, and published on pages 581-82 of the American Bee Journal for Aug. 25, 1904. We have republished it in 4-page leaflet form for general distribution, and furnish it, postpaid, at 35 cents per 100 copies. Send all orders to the office of the American Bee Journal.



## Contributed Special Articles

### Airing Cellared Bees—Is It Wise to Do It?

BY DR. C. C. MILLER.

ON page 694 (1904), Mr. H. R. Boardman, speaking about bees in winter confinement, says: "I used to open the outside door to admit the fresh, cool air at night to quiet the bees down when they became restless, but I am sure it is a mistake to ventilate in that way. The bees will surely become quiet after admitting the fresh air and lowering the temperature, but they will not stay quiet. It only increases the impulse to rear brood, just the difficulty that already exists".

Mr. Boardman is a man of sane judgment and ripe experience, and his view is apparently endorsed by Mr. Hasty, page 794 (1904). The paper of such a man, with such an endorser, ought readily to pass current as "gilt-edged", and the beginner who cellars his bees might naturally conclude that when a warm spell comes in late winter or early spring it will be unwise for him to open up the cellar, no matter how warm nor how uneasy the bees. Such a conclusion would, I think, be a mistake. Mind you, I don't say I know—I don't know—I think. It is clearly one of those things of which our good Afterthinker well says, page 794: "Manifestly it takes time and brains, and close observation, to reach the hardpan of correct practice".

Mr. Boardman winters bees above ground; I below. That may make a difference; and there may be other differences that make a thing right for me and wrong for him; and there still remains the possibility that I may be wrong in my views and in my practice. In any case it will do no harm to tell why I believe and practice as I do.

Throughout most of the winter the temperature in the cellar is higher than that outdoors. Toward the latter part of winter, however, and especially in spring before cellar-wintering is over, there come warm spells, perhaps only a day, possibly several days, when the outdoor air is as warm as that in the cellar. So long as it is colder out than in, the colder air forces its way into the cellar, making the ventilation constant. When the outdoor air becomes as warm as that in the cellar, there is an equilibrium, and ventilation ceases. Under ordinary circumstances, when these warm spells come, the bees become quite uneasy. I formerly thought it was because the bees were too warm, for the bees were quiet in the cellar at 45 degrees, and noisy during those warm spells when the cellar temperature went up to 48 or 50 degrees. I do not think so now. . . . Since writing that last sentence I have been down cellar, and the thermometer there says 54 degrees; outdoors 27 degrees. The bees are quiet; I think they would be more quiet at 45 degrees, but a furnace does not allow that.

The point I wish to make is, that if formerly, in warm spells, the bees were very noisy at 48 or 50 degrees, they ought to be still more uneasy at 54 degrees if their uneasiness was caused by the heat of the cellar. On such occasions I opened the cellar wide at dusk; the admission of fresh air only made the bees worse for a time, but by morning they were very quiet. That agrees with Mr. Boardman's testimony so far; but he says they will not stay quiet. I would not like to be too positive in such a matter, but I think they remained quiet until another warm spell. He says: "It only increases the impulse to rear brood, just the difficulty that already exists". What made it already exist? The only condition already existing that could start brood-rearing, so far as I can see, was the excitement from foul air or from warm air. Why should removing either of these conditions make the matter worse?

In my case, however, it was a rare thing for brood-rearing to start before the bees were taken out of the cellar for good, and I think the airing of the cellar did not increase brood-rearing. When a warm spell of several days occurred, if I had left the cellar closed I think the situation would have become intolerable. Conditions must be somewhat different with Mr. Boardman, if at such times his bees remain quiet with all closed.

I would at least advise that beginners who cellar their

bees would do a little experimenting before settling down into the belief that the cellar must never be opened for airing while the bees are in it. McHenry Co., Ill.



## Old Comb Foundation as Good as New.

BY G. M. DOOLITTLE.

THE old idea that we must have comb foundation that is just off the mills for use in the apiary seems to be springing up again, if I can judge from my correspondence. One wishes to know if it is a fact that such foundation is better than that a year old, or only some one's "think so". And another writes:

"Would you please let me know through the American Bee Journal if it will be just as well to fasten the foundation in the frames and sections during the winter months, while I have plenty of time, as to do the same just before it is needed, using *new* foundation? If the latter, then I must do the work when I am crowded with the bees, just when I can least afford to spare the time. If I could fix things this winter when I have nothing else to do, having everything in readiness when the bee-season opened, I could do the work at a much less cost to me."

During the years which have passed since I began to use comb foundation I have experimented largely in this matter, and have become thoroughly convinced that all talk about old foundation not being as good as new—about how it becomes hard and dry so that it can not be easily worked by the bees—is a fallacy. To be sure, on these cold, wintry days all foundation does look hard and dry and anything but inviting to the bees, or to myself either; but just wait till some hot day in June or July and then go up to the upper room of your building, where it is stored away, or where the frames are filled with it; yea, open up your surplus arrangement of sections and take a look at it, and if it is not too soft and pliable to handle easily, then your store-room and your experience will be different from mine.

Why I have alluded to an upper room or attic is this: Cold foundation has a whitish, hard appearance, while foundation in a heat of 100 degrees, Fahr., has a yellow, oily appearance, and when it appears thus it is pliable to handle and inviting to the bees. Now take a piece of foundation fresh from the mill, and take it into the cold room, and you will at once say this new is more acceptable to the bees than a like amount of foundation which is from one to three years old, with which you are making a comparison. But take the same new piece into the attic on a hot July day, and hold it by the side of the old, and you will conclude at once that both are alike inviting to the bees.

Again, take the old on some cool day in June, when it looks so uninviting, and lower a frame filled with it down into the center of the brood-nest. Leave it five minutes, then go with a piece of that fresh from the mill (or as fresh as can possibly be to the one who buys his foundation), open the hive and lift out the frame you set in a few minutes before, when, presto! the old and the new have become alike again, and the bees have already begun to manipulate that which is in the frame.

In other words, when placed in the hive the foundation assumes the same yellow, oily, soft, pliable nature after a minute or two that it has in the attic, or when first leaving the mill. And if this is a fact, which, from all of my experiments I know it to be, will any one tell me why it is not just as acceptable to the bees as that fresh and new from the mill? Under these conditions no one can tell the new from the old when the different pieces have been shuffled together, unless some special mark has been placed on one of them.

To show that I am not writing one thing while practicing another, allow me to say that *all* the foundation used in both sections and frames in my apiary during the past 15 years was placed where it is to be used by the bees during the months of December, January, February and March, and both the supers of sections and the hives of frames so filled are stored away for use when the hurry of the summer's work with the bees is on. In this way I have all in readiness, at the "ends of my fingers", for use just when they are needed, so that there need not be even an hour's delay.

This matter of old foundation not being as good as new, is like many another matter which has been started without due consideration being paid to it; and, being once started, it keeps on its rounds through the papers and on mortal lips, going around and around, as on an endless chain year

after year, decade after decade; bobbing up its head again after a quarter of a century has passed, till nearly all the world thinks it *must be a fact*.

### PROVE FACTS FOR YOURSELF.

And now, Mr. Editor, with your permission I wish to say a word or two about taking what any one says or writes as an *established fact*. I am not against any or all heeding what is said or written sufficiently to experiment thereon, for even a theory advanced by some may, and often does, prove a reality when put in practice by others. But no man or woman should be only an imitator of some one else. Set your own mind at work, and it will prove to *your own self* what is right and what is wrong, if you will let your hands obey its teachings by way of doing a little experimenting on a small scale.

Don't depend upon what Messrs. Dadant, Townsend, York, Root, Hutchinson, Doolittle, or any one else tells you unless it is right in line with what you want, and proves as they say under *your own* manipulation. If you want something different from what they do, please tell me what there is to hinder *you own self* trying what you want, and then if it proves, after trial, to be just the thing for *you*, tell the world about it so that Dr. Miller, Hasty, Doolittle, etc., can take advantage of your experiments as you have been taking advantage of theirs, and thus shall come a *mutual* benefit to the whole fraternity.

Dadant would never have been a Dadant had he been like a Doolittle, nor a Townsend a Townsend, nor a Dr. Miller a Dr. Miller. Don't be afraid of a little experimenting on *your* part; only take my advice and not go in too heavy at first. Two or three colonies are enough for the first trial, and if such a small experiment tells you you are on the right track, then use more until the thing is proven; when, after that, you can safely devote the whole apiary to the matter. It is needless to sacrifice a *whole* apiary to any single experiment, as some seem prone to think they must if they experiment at all.

Onondaga Co., N. Y.



## No. 2.—What is the Best Bee-Hive?

BY ALLEN LATHAM.

(Concluded from page 38.)

THAT the crosswise frame and the closed-end frame should not find favor in Texas or any other locality where the winter is not a serious item should not hold the attention a minute. We, in the North, have another problem on our hands altogether. We have a long, cold winter followed by a lingering spring, and not infrequently we have raw, chilly days in the summer months. The average bee-keeper perhaps gives too little heed to this matter of conserving the heat of the colony, to planning a hive which will meet the needs of the bee as well as those of the bee-keeper. In prosperous seasons bees will give good returns in any sort of rattle-trap of a hive, and in mild winters they get along well, though their keeper (?) has done little to further their comfort. But the bad season comes when only the best colonies pay for their salt, the cold winter falls when only the best-kept colonies see the next summer. It is for such that we must plan.

Does the hive that you keep meet with these requirements? Did your bees winter well last winter? Do you succeed in getting a surplus in the poor season? If you can answer yes with satisfaction then you perhaps will not be interested to better your hive, but if you do not answer yes then study the hive you use.

In a spring free from cold spells, and through a summer of prosperity a hive with its free-hanging, lengthwise frames will beyond doubt hold its own with one in which the frames are closed-end and crosswise. It is during the winter and the spring that the great superiority of such frames becomes apparent.

Think for a moment of the bees on a free-hanging, lengthwise frame in winter. The ends all come to the entrance, and the cold wind is free to go up along the sides of every layer of bees as they lie between the combs. Each inter-comb space is a part of the united interior of the hive. Now consider the closed-end frame. In this case each inter-comb space is a space by itself, which communicates with the rest of the space of the hive only below and through the pop-holes along the edges of the comb. Now set this frame crosswise. Only the first comb is next to the entrance, and any wind to get about the cluster of bees must turn an angle of 90 degrees. It will not do this, because in

order for it can be to get o

I g that th outside side en on, but mount.

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order for it to go up it must displace air already there. This it can not do, for there is not a chance for that air to move to get out of the way.

I give my hives ample entrance in winter, for I know that they have, as it were, a storm-door between them and outside. The spaces between the bottom-bars become inside entrances through which a good circulation is going on, but through which no cold, death-dealing winds will mount.

It is to be observed, further, that the free-hanging frames furnish a hive which is the same size throughout the winter, so that the weakened colony in early spring has the same big, cold quarters which the strong colony occupied in the fall. The closed-end, crosswise frame does not work on this principle. It is only so large a hive as the colony is large, for it is small for the small colony and large for the large colony. Each comb is a wall shutting off any space which the colony does not occupy. Extremely weak colonies will build up rapidly in spring in these hives. One season might easily pay for a change of hives in this way alone.

For cellar-wintering one style of frame is probably about as good as another, but after the bees are put out in spring the advantages would be with the crosswise frame. I should therefore assume that in general in the North the use of the frame which I advocate would be most advantageous.

It is only fair to acknowledge that my use of the frame does not cover any great length of time, only three seasons, and it is quite possible that a long use of the same may disclose objections which I do not now see. As the case now stands I see no objections which come anywhere near offsetting the manifest advantages; and I am confident that a fair trial will win many converts to this style of frame. The satisfaction of strong and vigorous colonies in the spring is worth the trial. New London Co., Conn.



## Mr. Hasty's Afterthoughts

The "Old Reliable" seen through New and Unreliable Glasses.  
By E. E. HASTY, Sta. B Rural, Toledo, Ohio.

### ITALIANS VS. BLACKS AGAINST FOUL BROOD.

I can readily imagine that energetic bees will make a much better flight against foul brood than would a strain of bees lacking in energy. I'm not quite so ready to set it down that Italians resist better than blacks, if a good strain of blacks is chosen. Still it may be so. The tactics of the two races are radically different. The German race is greatly inclined to make a panacea of simple waiting till the conditions of Nature improve; and therefore they do not wear their lives out in vain as badly as Italians often do. Italians incline to struggle under almost all circumstances. It happens, of course, that waiting for foul brood to improve is a sort of tactics that won't work at all—might as well wait for your house-a-fire to go out. Maybe Italians perceive this better than the blacks do, or, if not, their natural disposition to struggle comes in play better. Pages 819 and 829.

### INSUFFICIENT AND POOR STORES CAUSE OF WINTER BEE-LOSSES.

L. M. Gulder sized up last winter's great mortality just right when he said, "First, insufficient stores, and second, poor stores". I need not go outside my own yard for examples in evidence. And perhaps this sentence deserves more reflection than it is liable to get: "The basswood honey is gathered only to a limited extent from the blossoms, by far the greater quantity coming from the secretion of the leaves, or, in other words, basswood honey-dew". Wonder if that isn't what is the matter with my basswood honey this last season—too much flavor, and the flavor not as good as it should be. The taste alone, unconfirmed by observations, should not be accepted as proving this, however. I think a plant usually pours in about the same amount of flavoring, whether the nectar-secretion is small or great—that is, scant secretion pretty sure to be strongly flavored, and profuse secretion pretty sure to be lightly flavored. This law comes in splendidly for plants which

have disagreeable flavors. When the secretion is profuse enough their honey will be good. Same in regard to coloring matter; scant honey sure to be dark honey, and *vice versa*. Page 821.

### REMOVING BEE-STINGS WHEN STUNG.

We have again, on page 822, directions for the proper removal of a sting when we get one. I think I can add a suggestion of considerable value, which is for the most part strangely forgotten. It's all right to avoid taking hold of a sting with thumb and finger; it's all right to avoid pressing on it; it's all right to lift it deftly out with the blade of a sharp knife; *but not if extra time is consumed thereby*. Even one second gained in time is of more importance than any variation of the manipulation. A sting is a self-acting squirt-gun in action, and very soon pretty much the entire charge of poison will be driven in; after which all your wise "chenanigan" in removal comes too late. Have it out instantly—in the best way, if that's available, but in the worst way if you must. A large share of the stings which bee-keepers get come when one or both hands are fast. Place the wounded part against the best thing available, and with a rub forcible enough to be sure to take it out the first time, rub it out.

### COMB-HONEY STORY DENIAL ON SECTIONS.

Nice question to decide about, that denial printed on the section. Denial of a bad story about a lady should not be printed on her cheek—else lots of folks will thereby get it for the first time, and adhere to it—and some will view such strenuousness of denial as *evidence of guilt*. If nearly every one already has heard the manufactured-honey story, and already has an opinion about it, a printed denial on every section may perhaps be our best resource. On the whole, I rather think it is, although it will make *some people* believe the lie more firmly than ever. Page 822.

### YELLOW JACKET AND WASP STINGS VS. BEE-STINGS.

Where Wm. M. Whitney says that the sting of the yellow jacket is more virulent than that of the bee, he is on the track of the truth, but hasn't quite captured it yet, it seems to me. I think that the exact facts are that the two poisons are much more materially different than usually supposed, so much so that immunization against either one doesn't count much against the other. I have often noticed this in my own person. I am now tolerably well immunized against bee-stings. Before I was immunized I dreaded bee-stings more than I dreaded wasp-stings. Now wasp-stings affect me much the worse of the two—but perhaps not quite so badly as they originally did. And I think a man *could be* immunized against wasp-stings and not against bee-stings. Then he would dread bee-stings and regard wasp-stings with semi-indifference. Page 830.



## Doctor Miller's Question Box

Send Questions either to the office of the American Bee Journal, or to Dr. C. C. MILLER, Marengo, Ill.

### Making Supers and Hives—Hiving Swarms on Foundation

1. I am going to make 600 or 800 supers for comb honey. What style would you advise me to make? I expect to buy the separators. What size section and style of fence? I am pretty well satisfied with the T super with fences. Do you think I can do better?

2. I am thinking of making one or two hundred hives as follows: The body the same as the dovetailed except that the sides will be of  $\frac{3}{4}$  inch lumber. Will make a honey-board for over the frames, and make a deep cover, or cover with rim as deep as the hive-body. Top of cover flat, covered with paper. By making this cover of  $\frac{3}{4}$ -inch material the whole hive will not cost me any more than a regular dovetailed hive, and I figure that it would be very much superior in the way of spring protection, warm supers, etc. Am I right? Do you think such a hive with an additional rim and padded sticks around the bottom, and 4 inches of chaff over the bees, would winter bees well outdoors? You see, I want something that would winter bees outdoors on a pinch, but wherever possible I would winter them in the cellar.

3. Do you advise hiving swarms on starters for comb honey?

NEW YORK.

ANSWERS.—1. It isn't the easiest thing in the world to advise about such things. One's market is to be considered, etc. Other things being equal, it is well to get new supers of the same kind as



those already on hand. It is doubtful that you can get anything better than the T super, provided you know how to use it correctly. The fence should be the T fence to go with the T super, and should be nailed or fastened together in some way besides mere gluing, unless you prefer plain separators. As to size of section, find out which will bring most in your market.

2. On general principles it is a bad thing to make a hive different from all other hives, and I should advise against it unless you feel very sure it will be a great improvement. Even then it is best to go slow, and make a trial on a small scale. If you have never tried such a hive as you contemplate, you can not be at all sure you will like it, and it is not a nice thing to have as many as a hundred unsatisfactory hives reproachfully staring one in the face every time one goes into the apiary. So far as wintering is concerned, your hive ought to be all right, but I have doubts whether you would like it in summer. Honey-boards have been pretty generally discarded.

3. It is so important to have combs of perfectly straight, all-worker comb that it pays to fill the frames entirely full of comb foundation.

### Feeding Bees in the Spring.

I have 3 colonies of bees that I am afraid are short of stores, but if they should live until spring, and it gets warm enough so they can fly occasionally, would it be all right to feed them sugar syrup in feeders on top of the frames, a small amount each day, until the flowers bloom? Would it be likely to start robbing? MAINE.

ANSWER.—Instead of feeding a little every day, better give them a good feast, giving it to them warm as possible, so as to get them to take enough to tide them over a considerable space of time. If you give them a little each day when they can fly only occasionally, it keeps them stirred up and makes them fly out at times when they may be chilled and never get back to the hive. If the feed is given so that no robber can get to it except through the entrance of the hive, there ought not to be much danger of robbing, especially if the feed be given well on in the day.

### Transferring Bees from a "Log" Hive.

I placed a "log of bees" in the cellar a few days since. I had them cut and hauled in a wagon about one-fourth of a mile. They seemed to be all right. They had been in the tree since July last. I see a large number of dead bees at the bottom of the "gum" since being in the cellar. The log is about 4 feet long with a small opening, and I can see empty comb at the top and no bees there. I can see comb at the bottom and lots of bees. I placed a section of honey at the top, and it was untouched for three days. I placed it at the bottom with the same result thus far. Now, when should I transfer them to a regular Langstroth hive? And how can it be done—in the cellar, and when? IOWA.

ANSWER.—No, don't transfer in the cellar; wait till the bees are busy in fruit-bloom. Perhaps it may be better still to wait till the bees swarm, giving the swarm in the new hive, then cutting out the combs from the log hive 21 days after swarming.

### The Best Hive to Start With.

I will quit business the coming summer and locate on a farm. I have already purchased 6 colonies of bees, but I am not versed sufficiently in the bee-business to know what hive would be best for me to get. I was about to get the Danzenbaker, but since reading the American Bee Journal I see in the answers that you also have hives. Have you any for sale? If so, which would be the best and cheapest to get? How far are you from St. Louis? MISSOURI.

ANSWER.—I have no hives for sale, and have no financial interest in any hive. It is likely that the dovetailed hive would suit you as well as any. It is not so much the hive as the management; and I am sorry to say that sometimes claims are made for a hive of some particular make which are not warranted by the facts, and the inexperienced is led to think that if he only has that hive he'll get the honey. I am not far from 300 miles north of St. Louis, but a hive right for this latitude would probably be all right there.

### Sainfoin in Iowa—Getting Bees Out of Full Supers.

1. Will sainfoin grow in northeastern Iowa? If so, is it of any value as pasture for stock? Will it produce much hay, or is it something like sweet clover? If not, will it winter-kill? Would it be any damage to land?

2. What is the best way to get bees out of the supers when removing honey? I removed the cover and then tried to smoke them down. I smoked and smoked, but there were still several hundred in the supers when I took them off. IOWA.

ANSWERS.—1. It grows in Wisconsin and Canada, and most likely it will in northern Iowa. There is no need to fear that it will damage the land. For further information see American Bee Journal for 1904, pages 740, 813, 846, and especially the article by C. P. Dadant, page 790.

2. There are different ways of getting them out. There are times when honey is yielding so abundantly that you can set a super on end on top of the hive and let it stand there till all the bees have run down into the hive; but you must watch closely for the first sign of robbing

or you'll have a picnic. If you have only a single super, put it in a tub, cover over with a sheet, and turn the sheet over from time to time. You can use a Porter escape, thus allowing the bees to go down of their own accord. The bees may be partly smoked down, the supers taken off and piled up 5, 10, or more high, and a Miller tent-escape put on top, allowing the bees to go out at their leisure. You will find particulars in the book, "Forty Years Among the Bees". Do not think of trying to smoke all of the bees out of a super while leaving it on the hive. If you must rush them out with smoke, smoke lively for a minute or two, take off the super, close up and set the super on end on top of the hive, then smoke and brush till the bees are all out.

### Transferring Queen-Cells.

I understand that after a colony of bees is made queenless they will build several queen-cells on one frame. Now I desire to cut these queen-cells out and insert them on another frame of brood that is to be given to a nucleus. Can this be done? If so, will the nucleus after 48 hours accept these queen-cells? MICHIGAN.

ANSWER.—Instead of building cells only on "one frame", under ordinary circumstances the cells will be on several frames. Yet, if you so desire, you can have them built mostly on one frame. Take a frame containing comb that has been just built, the outer edges containing nothing beyond larvae just hatched, and you are pretty certain to find nearly all the queen-cells on that frame provided the other combs in the hive are old. About eight or ten days after such a comb has been given to a queenless colony the cells will be ready to cut out, and will be accepted readily by a nucleus that has been queenless as much as 48 hours, or even the half of that time. Fasten the cell on a central part of the comb, where you are sure it will be kept warm by the bees. A good way to fasten it on the comb is to take a live staple, letting one leg of the staple straddle the cell, the other leg being firmly pushed into the comb. If you haven't a staple, two wire nails will do, each an inch and a fourth to an inch and three-fourths long, each nail thrust in slanting so as to hold the cell between them.

### Red Clover Bees—Swarming and Superseding Queens—Making Hives.

1. In a locality where there is an abundance of red clover, would it pay to keep only the red clover bees?
2. How can I get the most increase from one colony of bees?
3. Will bees at any time while rearing brood, if a queen is removed, begin at once to replace her?
4. Will it pay to have new swarms on full foundation in the frames, that is, foundation as large as the frames the bees are to occupy?
5. How soon after a swarm issues can I put it back where it came from?
6. As I expect to make my own hives, how would it be if I make them out of 1-inch pine or basswood, then inside of the main body leave an inch space all around the hive inside, and pack this space with sawdust; then, for winter, make a frame out of about 2-inch material and put this on the frames above the bees, and fill this 2-inch space with sawdust? Would this make a good hive to winter bees in out-of-doors where the thermometer gets to be 12 to 18 degrees below zero? OHIO.

ANSWERS.—1. Yes, it would be better to have in such a locality bees that will work on red clover than those that will not, for they can do just as good work on other plants as other bees. The right way is to breed from the stock that gives you best returns, red clover or no red clover.

2. That's too long a story to tell here. There is no way that will suit every bee-keeper in every locality. Study up general principles; become thoroughly familiar with what is in the bee books and papers, and you can then tell better than any one else just what will be best for you. For some, natural swarming is best; for some, shaken swarms, increase by nuclei or some other way. You will find several pages devoted to artificial increase in the book, "Forty Years Among the Bees", perhaps more than in any other one book.

3. Yes, although there might be an abnormal case where the bees were slow to recognize their condition.

4. I feel so sure that it pays me that I never have a frame that isn't filled entirely full of foundation.

5. You can put it back whenever you like. If your object is to prevent further swarming, it may be well to wait 24 hours. In general, however, it is better to use plans that do not require the returning of swarms.

6. It may work very well, but it would be well to try a few at first to find out before making a large number. You may also find that it will cost more than to buy the stuff ready to nail together.

**A Queen-Bee Free as a Premium.**—We are now booking orders for untested Italian queens to be delivered in May or June. This is the premium offer: To a subscriber whose own subscription to the American Bee Journal is paid at least to the end of 1905, we will give an untested Italian queen for sending us one new subscription with \$1.00 for the Bee Journal a year. Now is a good time to get new subscribers. If you wish extra copies of the Bee Journal for use as samples, let us know how many you want and we will mail them to you. Address all orders to the office of the American Bee Journal.



## Convention Proceedings

### THE ST. LOUIS CONVENTION.

Report of the 35th Annual Convention, of the National Bee-Keepers' Association Held at St. Louis, Mo., Sept. 27-30, 1904.

(Continued from page 42.)

#### WORK IN APICULTURE AT THE UNITED STATES DEPARTMENT OF AGRICULTURE.

It was in 1885 that Dr. Riley secured the establishment of an apicultural station at Aurora, Ill., which was in charge of Mr. N. W. McLain. Experiments were conducted during that year and the two following years, under the direction of the Entomologist. There was good work done during this period notwithstanding the severe criticism of certain jealous writers, and I am disposed to agree in the main with Dr. Riley's statement that "there is probably not one of Mr. McLain's critics who would have done more of real benefit to apiculture during the same period and under the same circumstances." I have but to mention among the recorded experiments those conducted by Mr. McLain to determine whether bees could injure sound fruit or not. The results have been very widely quoted and pointed to as authoritative, and the report has done a great deal to prevent misapprehension between fruit-growers and bee-keepers.

For several years following this the Entomologist felt unable to continue the work, but in 1891 a series of experiments were conducted at the Michigan State Experiment Station by Prof. A. J. Cook, assisted by Mr. J. H. Larabee, under the general direction of the Entomologist. The arrangement, however, did not prove extremely satisfactory, nor did the work done meet, by reason of originality or decisive results, the special approval of the Entomologist. It was shortly thereafter discontinued when the commissions expired.

Meanwhile it had been Dr. Riley's desire to undertake the securing of the giant bees of India, and he had addressed a letter to me while I was abroad offering me a commission to proceed to India and secure these bees. At that time, however, I had started on my way back to my native land, after an absence of 11 years, and his first communication finally reached me while in New York, having followed me up from my last address in Austria. Owing to technicalities, however, Dr. Riley was unable to secure the authorization to send me on this mission, with which it was his intention to couple certain other work, such as the securing of the caprifig insect (*Blastophaga psenes*) which was so much needed for the pollenization of the Smyrna figs in California.

Having become intimately acquainted with Dr. Riley's views on all of the subjects, I can positively assert that he was perfectly willing to undertake continuous and progressive experimental work in favor of the apiarian interests of the country, had the funds of the division of Entomology permitted this. But having been blocked in the first work which he designed me to undertake, he lost much of his interest in taking hold of the problem which presented itself, of establishing on a permanent footing a section for apicultural experimentation, especially as my services could be utilized for the time being in the general work of the Division of Entomology, while at the same time such correspondence as came to the department relative to apiculture was turned over to me for attention.

The changes which followed rapidly after this, resulting in the placing of Dr. Riley's first assistant in the position of Entomologist, and the sudden and untimely death of Dr. Riley himself, somewhat changed the status of matters, and it has only been rather gradually that the importance of practical experimental work, and the need of scientific and systematic investigations in apiculture have been sufficiently impressed upon the authorities to result in a more liberal policy toward this industry. Mean-

while, however, records of interest have been accumulating, thousands of letters of inquiry relative to apiculture and apiarian interests in the country have been answered, and many thousand bulletins treating of apiarian management have been sent to all parts of the country, and even many to foreign countries, in response to requests which come daily for information. It might be said that the department has practically, for a number of years, conducted a correspondence school in apiculture, since every inquiry, of whatever nature, received careful attention, and, if it required, a specific answer giving the best information at hand on whatever topic the inquiry covered. Moreover, large numbers of teachers in the normal college of the District of Columbia, and the public schools of the city of Washington, as well as teachers of nature study in other cities, have been furnished with information and specimens of bees for use in their class work, and numerous demonstrations have been made for the benefits of these teachers, as well as frequently for large classes under them, including the class in the normal school who would shortly become teachers in charge of public schools.

Realizing that it is the constant dropping which wears away the stone, I have, during the 13 years I have been connected with the United States Department of Agriculture never permitted to pass unutilized an opportunity to create in the mind of those in authority there a favorable impression concerning the dignity of apiculture as a pursuit, and the needs of the industry in connection with scientific experimentation. With this I have, however, studiously avoided being obtrusive, preferring rather to use patience and perseverance and bide the opportune moment for presenting the claims of our pursuit. All along I have noted a growing interest in the subject at the department, a feeling, in fact, to use the words of many of the scientific gentlemen connected with the experimental work there, that "there is far more in this business of bee culture than we had formerly supposed." They have also remarked that it needed extended scientific investigation as to the zoological, botanical and chemical sides of the subject, as well as from the practical bee-keeper's standpoint. At last I have the intense satisfaction of seeing this matter duly appreciated, and the proper steps taken to insure the investigations which we all so much desire.

During the years when no special fund could be devoted to apiculture I still continued to do, largely on my own time and at my own expense, some experimental work, particularly with honey-producing plants, which I tested quite extensively during a series of years, with various foreign races of bees, and in regard to methods in queen-rearing and methods in the successful wintering of bees in the open air. My own apiaries were largely devoted to these experiments, without regard to the evident decrease in the honey-yield which must necessarily result. Queens of various foreign races were reared, and certain crosses produced between these races, and sent to certain state experiment stations and to certain portions of the country, where it seemed desirable to test the particular strain in question. Numerous notes and observations for further use in the work when it should be firmly established, were collected from time to time, and plans for experiments and for observations and study of apicultural conditions in all parts of the country were made. During this period the title borne by myself was that of Investigator in the division of Entomology, and later Assistant Entomologist. Finally, in 1901 these efforts resulted in the setting apart of a special appropriation for apiculture of \$2,000, the first and only special appropriation which has been made for this branch. My own title was changed to that of Apicultural Investigator, and my salary, with that of a temporary assistant for a few weeks in the summer, were charged to this fund, which left really but a few hundred dollars for investigations. This small sum was utilized to continue the work already started and to make way for a more permanent organization. Since, however, it was not sufficient for the establishment of a well-equipped apiary, my own personal apiaries were still placed at the service of the Department. Unfortunately, the disposition on the part of legislators seemed to be to make appropriations in the form of a lump sum, rather than specific, so that instead of reaffirming this specific sum, it was absorbed into the general fund of the Division of Entomology in subsequent enactments. The result of this seemed to make it difficult, as there was no mandatory clause regarding the amount to be devoted to apiculture, to secure any definite setting



apart for this work, although the theory of a separate section in the Division of Entomology devoted to apiculture, was recognized, and certain light expenses, together with stenographic services, allowed.

This brings us to the opening of the present fiscal year, July 1, 1904. I have quoted from Dr. Riley's article his allusion to the fact that the work which he began so many years before had to be interrupted, and I have also mentioned to what he attributed this, to some extent, namely: "to the lack of effort on the part of bee-keepers themselves, i. e., to their failure to take united action such as would bring home to the head of the Department, and to those in charge of the general appropriations, the needs and just demands of the industry." In this connection I should like to call your attention to the fact that I had strongly recommended to the National Association which met in Albany the year before, i. e., in 1891, some action looking to the development of a separate section or division devoted to apiculture here at the Department, and that a committee was appointed at the Albany convention which made the following recommendations:

1st. That the Section of Apiculture in the Division of Entomology, Department of Agriculture, be raised to an independent Division.

2d. That in connection therewith there be an experimental apiary established at Washington, having all the appointments necessary to a first-class Apicultural Experiment Station.

3d. That the appropriation for this Division be sufficiently large so that the work may not be embarrassed for the lack of funds.

Had these recommendations been followed up by the proper influence they might long ago, I believe, have been carried out, but the matter rested in this shape for a long time. However, I should not leave the subject without mentioning the substantial encouragement which has been given to the latest effort for development of apicultural work at the Department, and in the first rank I must allude to the efficient aid and influence given by the active chairman of the Board of Directors of the National Bee-Keepers' Association, Mr. W. F. Marks, of New York; and the able editor of *Gleanings in Bee Culture*, himself one of the board of directors as well, Mr. E. R. Root, of Ohio; to the worthy President of the National Association, Mr. J. U. Harris, of Colorado; to W. Z. Hutchinson, editor of the *Review*, and himself a member of the board of directors; to Dr. C. C. Miller, of Illinois, another of the directors, as well as numerous friends who have taken occasion to voice their sentiments with their representatives in Congress to the end that they should support such measures as have been so long recommended and so earnestly striven for during this long period of more than a decade. It is in the end a substantial victory to the apicultural interests of the country, which is not passing but permanent, and whose results I hope will continue and grow long after all who listen to my voice shall have passed away.

Thus, at the date mentioned—July 1, 1904—after long effort and repeated representations to authorities at the Department and legislators themselves of the needs of such general work in entomology, and particularly in the various economic lines grouped under the general subject of entomological investigations, the Division of Entomology was raised to the rank of a bureau, with what is practically a Division of Apiculture. And while the appropriation is still in the form of a lump sum, there is set apart a definite sum for apiculture, which leaves, after the payment of salaries, some \$5,000 for experimental work. I have been allowed two assistants, each bearing the title, Special Agent in Apiculture, and one whose title is that of Apicultural Clerk, and in addition to this, stenographic service.

As my first assistant I have been able to secure Mr. John M. Rankin, of Michigan, a student and experimenter in apiculture, with whom many of the members of the National Association are well acquainted, and whose name is familiar to many others in connection with his former work as State Inspector of Apiaries in Michigan, and before that was in charge of the experimental work at the Michigan State Agricultural College. He is a graduate of the institution just named, and a young man of excellent habits from whom we may expect valuable aid in the general work in apiculture at the Department.

As the second assistant, Mr. Leslie Martin, of Tennessee, an enthusiastic student of apiculture, has been en-

gaged. He is still young but has had several years' experience in practical work with bees, and has already shown perseverance and intelligent attention to the subject.

A civil service examination has been held for the position of apicultural clerk, and we may hope an intelligent assistant will soon be appointed to fill this position.

The Department has granted the establishing of a model apiary of 50 colonies, and through competitive bids the contract has been awarded to a bee-keeper in the State of Maryland. The bees have been delivered and will shortly be located in their permanent place at the Arlington Experimental Farm, connected with the Department of Agriculture. This farm is located on the Virginia side of the Potomac River, directly across from the Department grounds. I believe that the location will be fairly isolated, and thus that any particular race we choose to establish there may be bred, with excellent opportunity for preserving its purity. At the outset the new race imported from the Caucasus of Russia will be established in these colonies for a thorough test, and for the purpose of crossing with other types.

#### THE WORK TO BE UNDERTAKEN.

I shall pass very briefly over this, since my historical review of the development of this as a branch of the work at the United States Department of Agriculture has been rather more extended than I had planned; and furthermore, I prefer that the work we shall undertake, when completed, shall speak for itself, rather than that I should make at the present time many words over mere plans.

The fitting up of a model apiary at the Arlington Experiment Farm, which is under the control of the Department, the building of a bee-house, laboratory, and workshop combined, and getting together of all the necessary implements, hives, queen-rearing outfit, tools, chemicals, etc., for the conduct of experimental work, will necessarily consume a little time. The bees have been purchased in the open market, after bids had been advertised for and received. They have been delivered in good shape, and are now prospering on the wild aster which blooms so abundantly in the latitude of Washington in September and October. This part of our work is, therefore, well under way. We have already taken steps toward the procuring of seeds and roots of certain important foreign honey-producing plants, and have secured the cooperation of the Bureau of Plant Industry at the Department, which is in charge of the introduction of new and valuable forage, seed and fruit crops, as well as the congressional seed distribution, which latter is largely confined to the distribution of vegetable, flower and forage-crop seeds, most of which are already known in this country. The Bureau of Plant Industry will undertake to secure at the suggestion of the Agricultural Investigator, seeds of such important forage and garden crops as have not yet been brought to this country, and which are valuable as honey-producers. We are, therefore, ready to file applications for small quantities of seeds which we shall endeavor to send out with discrimination so as to gain the best results possible with seeds adapted to the region of the applicant. In the aggregate there will be considerable quantities of these seeds, yet anticipating that the demand will also be lively, it is expected that only a small quantity for testing can be sent to individual applicants.

It will be the policy of the Department, in its agricultural work, to cooperate with all State bee-inspectors, whenever any cooperative work is desirable, provided, of course, the sum at the command of the Department for this purpose admits of this. During the first year not a large amount can be turned in this direction, however; but it is to be hoped that in successive years the original purchasing and fitting up of a department apiary having been accomplished, there will be more opportunity to undertake a more thorough investigation of all known contagious bee-diseases.

Naturally, many interested in seeing the giant bees of India and the Philippines (*Megapis dorsata* and *zonata*) tested in their native countries, and perhaps in this country also, will inquire what we shall do about this. Some other more wise in his own view, and desiring to point his finger and poke fun at ye apicultural investigator, will at once reply: "Oh, that is one of his particular hobbies; assuredly he will let everything else go by and fly off in a tangent on this wild bee (goose) chase." But hold, good friend, not so fast. We are trying to keep a weather

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eye peeled and peer in all directions in order not to allow anything of importance to escape our notice, and in order to be able to estimate at its true worth any possible line of investigation. This being our attitude, all may rest assured that we shall not let any investigation of the great bees occupy either the whole time nor the whole sum which may be devoted to experimental apicultural work. The matter, is, however, a larger one than the mere getting and testing of these bees for their value as direct honey-producers in the United States. It is in itself sufficiently valuable, from a scientific standpoint, to warrant its being undertaken, for this reason alone, at an opportune time. The comparison of the breeding habits, qualities, structure and general life history of these great bees, will afford much that is instructive, and settle long disputed points that all will be glad to have at rest once for all.

There is a further reason for undertaking to find out what we can concerning the bees of the Philippines, namely the opportunity which would at the same time be afforded for studying the possibilities in practical apicultural work in those rich islands which extend over a thousand miles from north to south, or from Boston, Mass., to Savannah, Ga., on our eastern coast; or from St. Paul to New Orleans, in the Mississippi Valley; or again, from northern Oregon to southern California, in the west, and with all variations of mountain, lake and valley, sea-exposure, swamp and jungle. Here is a vast field in which at least it is our duty to study the possibilities, and point out, if possible, the way to success. No step will be taken without careful consideration, but action once decided upon will be pushed with all possible speed and energy. But what will we do? Wait and see, and meanwhile give us your advice.

Numbers of queens of valuable races, and select strains of certain races, are being imported and tested. These include the extremely gentle Caucasian bees from the shores of the Black and Caspian Seas in Russia. Cyprians from the Island of Cyprus, which have proven their prepotent value as crossing material; Dalmatians from the Province of Dalmatia, Austria; Italians from the foot-hills of the Alps, in the extreme northern part of the Kingdom of Italy, where the most industrious type of this race is to be found; and lastly Carniolans, from the most elevated districts of the Province of Carniola, in Austria, a type which, by reason of its gentleness, excellent wintering qualities, hardiness, and prolificness, has shown itself of great value in this country, especially in comb-honey production. Daughters of these races, and various crosses between them, will be bred for testing, both here and at numerous stations. We are particularly desirous of securing unbiased tests on a sufficiently large scale to enable us to decide the exact value of each of these for any and all parts of this country.

If it is possible it is proposed to test, more fully than has heretofore been done in this country, the employment of artificial heat in the wintering, and more particularly in the rapid breeding up of bees in early spring. It is certain that artificial heat may be successfully employed to produce such results. The question then arises whether it is at a profit or not, in view of the expenditure of means and time required.

It is likewise believed that there is great room for improvement in the hives and accessories concerned in migratory or pastoral bee-keeping, at least as this system has thus far been practical in this country.

Whenever the experiments and field-work here indicated do not fully occupy the time of the experimenters and office force, there is an indefinite amount of additional work which may be followed up, such as, for example, collecting data regarding the apicultural industry in the United States, first as to the principal honey-producing plants of the various regions; second, as to losses of bees by diseases in wintering; third, as to the races of bees now kept, and their relative proportions; fourth, as to the proportion of frame to box hives now in use; and fifth, as to honey production.

On the basis of the data obtained under the first head, that is, regarding honey-producing plants of the country, it is proposed to map on outline maps of the United States the areas of the principal honey-producing plants, and to determine where and what new plants can be disseminated for the purpose of increasing the pasturage of any given section.

There are still some points in the life-histories of insect enemies of honey-bees that should receive attention and clear elucidation.

A card index of apiarian literature is much needed in the

office-work to furnish ready reference to everything that has been written on a given topic.

Then, naturally, whatever results may be attained, or whatever information it is desired to make public, will have to be put in the form of bulletins, which will require care and time for their preparation.

In all of this work, whether experimental or office-work, the Apicultural Investigator earnestly hopes for the hearty coöperation of the bee-keepers of the country, and is desirous of receiving from any who have in mind a subject of general interest whatever suggestions such persons may feel disposed to give, and all may rest assured that the most careful consideration will be given to any and all propositions of this nature which may be presented. In this connection the remark of the esteemed Dr. Riley must not be forgotten, but should be held as a prophetic warning, namely: "that the reason that nothing more resulted from the work begun under his auspices in 1885 should, to some extent, be laid to the lack of effort on the part of the bee-keepers themselves, that is, to their failure to be unanimous and hearty in their support of the work."

A few words in closing in regard to the present Chief of the Bureau of Entomology, Dr. L. O. Howard. All of those who have the honor of being acquainted with this gentleman will join me, I am sure, in testifying to his high standing as a scientific investigator, as well as to the genial whole-souled nature of his personality. To those who have not met him I would say, that no man is more widely known among the galaxy of distinguished scientists whose homes are in the Capitol city, and in his line of work no man is more highly esteemed. His work in scientific and economic entomology, and his writings in this line have made him known in every country of the world where there is even the slightest appreciation of the labors of the scientific investigator of insect life. He is not a bee-keeper, but he has come in the course of the years during which we have been associated, to know something of the status of this industry and its needs, and I can assure the members of this organization, and through them the bee-keepers of the country, that he is in hearty sympathy, as was his predecessor, with progressive work in the line of investigation and development of the industry in every part of our country. With greater opportunities in the way of funds than were accorded to Dr. Riley, he is able to authorize more work, and it is due largely to his liberal spirit and his ready acceptance of my own recommendations in every particular, that the industry is now upon so substantial a footing at the Department, and that the outlook for continuous practical and scientific investigation in apiculture is now so excellent.

FRANK BENTON.

#### SIXTH SESSION.

At 7 o'clock p. m., the President called the convention to order, and also called for discussion on Prof. Benton's paper.

Mr. Hershiser moved, seconded by Mr. Dadant, that the matter of taking such measures and steps as shall continue the governmental apiary in investigations in the interest of apiculture in the United States be referred to the committee on Legislation. [Carried.]

Pres. Harris—We should not give a paper of this sort mere passing notice, for the reason that Prof. Benton himself has done everything that the bee-keepers could ask of him in his official position. There are many things in that paper that are grand and good, and in the best interests of the bee-keepers of America. For instance, the matter of getting honey-plants and scattering the seed throughout the several States that it may be beneficial to all of us who may be bee-keepers; another matter, that of establishing apiaries where they may experiment in the line of getting queens of the best sort, probably getting longer-lived queens, if possible. As we go along we get improvements in every line in life, as you see here at our door, and each and everyone of you should lend your encouragement and your help to the one who is foremost in this work. I know it was only last winter, and the winter before, through his efforts he has got appropriations. Now that he is going to assist not only the United States but other countries in the development of the bee-industry, we should not pass lightly over these matters but look at them from a careful business standpoint, and then after we see we are right go to our representatives in Congress and in the Senate, because you all have influence—the most humble citizen in life has his influence—and by putting forth that influence in a few years we will get into a different channel from what we are at present, and you will all be proud of the fact that you are mem-

bers of this Association. We will not have to solicit members; they will come and solicit us to join. Up to this time you have had one of the most successful conventions in the history of the Association, and let it go to the world that such papers as have been presented here are doing a world of good for us; it is building up our industry; and let us each and everyone try to help one another, and when we have done this we have done a good thing for the cause.

Mr. Abbott—I ventured to suggest a little change in a paper yesterday, and I will venture to suggest a little change in another one. When a paper is written in an official capacity it ought to rise above everything of a personal character. It ought to overlook any personal preference that one might have. Now, I don't want to be misunderstood. There is only one weekly bee-journal published in the United States, and I don't own any of it or have any interest in it, but it does as much to aid in building up bee-keeping as any other one institution on the top of God's earth. It has done it under the present management, and I believe it has done it under every management. Mr. Benton in his public paper does not recognize the existence of the American Bee Journal, and I object to that part of the paper, and think that he ought not to make reference to other papers as to the great work they have done, and absolutely ignore the grand old American Bee Journal.

Mr. Root—There is one matter spoken of in that paper, and that was with reference to getting senators and representatives to take hold of any matter connected with the Government. When you desire to get an appropriation one man cannot do it, one bee-journal editor, nor two can do it, there has got to be pressure brought to bear from a good many sources and a good many bee-keepers. I remember when this last appropriation was up for consideration I was asked to write to our Senator at the time, and I did, but that didn't go very far. At that time I didn't have the means at my command to bring it to the notice of the bee-keepers in time to do any good, and the result was that our Ohio senators did nothing to help in this matter, but I have learned since attending this meeting that pressure was brought to bear on some of the senators who did have influence, and some work was done, and it was due to that influence that that appropriation was secured in order that we might secure larger benefit for our National work, and if we wish to enlarge the scope of our National work we ought to take hold of this thing and pull.

Mr. Titoff—I should like to say something to you but I cannot do it as well as I should like to because I am not so well acquainted with your language, as I come from a foreign country. I wish to tender to you my thanks for the attention you gave my paper. I was greatly interested in bee-keeping when I was in my own country. I had been reading all the literature I could find in Russia. I have read many articles in Russian which have been translated into that language from the English, and I was very much interested in the reading about bee-keeping in America. Not only we in Russia but all people know that America is a great country. Americans have gone into every business. I became so much interested in bee-keeping in America that I wanted to come myself to see the Americans. I thought about it more and more, and I finally decided I would come to America and if possible take up practical work in the American apiaries and study American methods. When I left my home and my people I did not know one word of the English language. My Russian friends told me that it was very hard to learn English, but I think with hard work I will be able to understand it sufficiently to earn a living in America. When I came to this country I went to the Root company. Before I came here I was in Switzerland, and I think many of you know Mr. Edward Bertrand. I had a letter of introduction to him from a friend at St. Petersburg, and Mr. Bertrand is acquainted with Mr. Dadant, whose name is well known in Russia, and he gave me a letter of introduction to Mr. Dadant and the Root company. I first came to the Root company and I received from them a very kind welcome, and they said they would give me work and I would improve in the English language, for which I thanked them very much. I have the honor to be the representative of the Russian bee-keepers in the convention here. It will give me great pleasure to write to the Russian journals to give them information as to the methods of bee-keeping in America and to tell them that I have received at the hands of the American bee-keepers very great kindness. In my paper which was read at this convention I thought it would be interesting to American bee-keepers to know about the industry in Russia. The paper is not as good as I could wish but I hope you will excuse me for

taking up so much of your time in the reading of it. I thank you very much for your attention.

At this stage Mr. S. Francis of Colorado favored the convention with an instrumental solo.

Mr. Hutchinson—As chairman of the committee on resolutions I beg to report that we have commenced to make poets in our ranks, and it seems that one has cropped up down in Alabama who has gotten out a little volume as a souvenir edition and has made a nice greeting for the Association in the forepart, and he asks the privilege of presenting each one of the members with a copy, and your committee would recommend they be accepted with the heartiest of thanks.

Mr. Hutchinson—We have a resolution made by Mr. Dadant that this convention assert that no artificial comb-honey has ever been or can be produced; that the only successful adulteration ever made has been of liquid honey out of the comb. The committee believes enough committees have been appointed upon this subject, and that enough has been said to cover this ground, and we would recommend that it be not accepted. We have also a resolution here from Dr. Bohrer, upon the appointment of two persons from each State and the Dominion of Canada who shall organize themselves into a legislative committee. This resolution has already appeared in a previous part of the minutes and your committee recommend the adoption of the resolution. [Carried.]

#### CAUCASIAN BEES.

"Has any member had any experience with pure Caucasian bees? If so, what are their qualities?"

Prof. Benton—Something more than twenty years ago my attention was called to those bees in Germany; they had been imported there from the Caucasus. There were such varying reports concerning them that I was not very much inclined to test them at that time, especially as I had my hands full with other races of bees, and furthermore those I saw were not very uniform in their markings. The Germans said of them, I think nearly all, that the bees were extremely doubtful; some said they were quite worthless as honey-gatherers, others told about their great disposition to swarm, and so on, and all that disinclined me to take them up. About two years ago I was out at the apiary of Rauffuss Brothers, near Denver, and they spoke very highly of these bees. They had received some that came directly from the Caucasus. I was led to undertake to get some bees and have been testing them. I find them good honey-gatherers; they are as I noticed in Germany, rather varying in their markings; they look something like Carniolans that have been dipped in water and then dried, giving them a leaden tinged appearance, yet they are easily distinguished, their bodies are smaller than those of the Cyprian and so tractable that anything one desires to do with bees can be done with them without smoke, without any bee-veil, at any time, early or late, whether getting honey or not; they can be brushed from the combs with the bare hand and you can hammer on the entrance and brush the bees from the entrance and do anything with them, no matter if the propolis snaps, no matter if the time of day is undesirable and you have no bees flying after you in the apiary or about your face; they fly through the air in large circles and return; they do not sting. They can be made to sting by pinching. If you bother them in the fall when wet or cold they might occasionally sting you. I have never had any occasion to use any smoke on them at all. Exactly how they are going to compare with other bees as regards their productiveness I am not quite able to say. I should like to hear Mr. Titoff tell us as to them. Some people here find they are great swarmers, perhaps, but that results from being so prolific; they must be kept in large hives that will give them room to expand and build up.

Mr. Titoff—What Mr. Benton says about those bees is true. I have had my own experience, and I find that the Caucasian bees are better than our common Russian bees. They work early in the morning and late at night; they are very gentle and not cross at all. You can go among them without either veil or smoke. They have only one fault and that is swarming. It is very hard to keep them from that. They make plenty of queen-cells. If you take away the queen-cells today, tomorrow they will make twenty or thirty more. Some people say the Caucasian bees produce honey that is different from that of the common bees.

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last year I encountered two apiarists who had Caucasian bees. They were represented to me as stingless bees; they were in Berlepsch hives; they stung me twice! They were swarming entirely too much, they informed me, which was perhaps due to the smallness of the Berlepsch hives. They had not proven to be profitable. They said they were not gathering as much honey as the Carniolans. The Carniolan predominates in the greater part of Germany, although some very nice Italian bees can be found. The parties who owned these bees did not seem to be very favorably impressed with them. One said he would not continue them another year unless they proved better than he anticipated.

Mr. Titoff—They will rob worse than other bees.

Prof. Benton—That has not been my experience. I have not had a large number of the pure cult but I have not seen that those pure bees were endeavoring to rob, and I had them among other colonies and I would have noted it at once. I have quite a number of Caucasian queens bred to Carniolan and Cyprian drones, and I formed a very favorable opinion of those crosses, and I am disposed to think that Caucasian males will be most excellent as crossing material with the Cyprian bees to modify the temper of the Cyprian and still retain the excellent working qualities. One reason is that the type is much nearer that of the Cyprian, therefore, I think they will coalesce more readily. I do not believe such a race of bees would serve my purpose, but I do believe in this country, where so many bees are kept in the cities and public highways that such a valuable and fairly productive race would have its place and would make bee-keeping popular, and many of the difficulties in connection with people coming to this Association and complaining that their neighbors are interfering with their keeping bees would be done away with in a great measure.

Mr. Miller—Prof. Benton, you know that the cross of the Italian with the common black bee results in making the progeny crosser than either one. In case of crosses with these Caucasian bees, are the crosses in all cases gentler than the blacks or Italians?

Prof. Benton—Yes. I have been crossing Cyprians and Carniolans for the past nineteen years, various crosses starting sometimes with the Cyprian and breeding to the Carniolan drone, and sometimes with the Carniolan and breeding to the Cyprian drone or the Syrians, and I have crossed them back again and it is invariably my experience that the male had the main influence in both the temper and constitution of the worker progeny. I have taken a pure Cyprian and mated it with the Carniolan and I have bees that are much gentler than the Cyprian. The fact that the Caucasians are gentler and are a fine type to coalesce inclines me to believe if we used the Caucasian males we would have better crossing material to use upon the Cyprian than if we used the Carniolan.

Mr. Muth—I would like to know whether the Caucasian bees swarm more than the Carniolan.

Prof. Benton—I can't say. I hardly believe they would under the same circumstances.

Mr. Hyde—I would like to know how they cap honey, and if they are good comb-builders?

Prof. Benton—They are good comb-builders and cap their honey fairly white. People have told me that they were good workers, good gatherers and storers of white honey, but would not work on buckwheat. I cannot believe that if they would work well in the early spring that they would not be in condition to store buckwheat-honey.

Mr. Titoff—I know nothing about crossing bees with the Carniolan or Cyprian, but some of the Russian bee-keepers have crossed Caucasian bees with Russian black bees and they have found that the progeny is more like the pure black or pure Caucasian bees. I cannot answer Mr. Muth's question because I have not had the experience. I think those who have had experience say that the Caucasian bees are greater swarmers than others.

Mr. Kretschmer—Permit me to ask Prof. Benton with regard to the crossing. Isn't it a fact that an Italian queen or a Carniolan queen crossed with a Cyprian drone produces crosser bees than if the reverse were the fact?

Prof. Benton—Certainly. In my experience the Cyprians are the greatest gatherers of honey of any race that I know of, but there are some exceptions to that. If the Cyprian is mated with the Carniolan drone they are more likely still to get more honey than if purely mated,

for the simple reason that the constitution is made hardy and the bees do not dwindle in the spring; they have the tongue-length and energy of the Cyprians with the hardy constitution of the Carniolans.

Mr. Whitcomb—For the last twenty years I have been superintendent of the honey show at the Nebraska State Fair, and every single first premium that has been awarded on comb-honey has been on honey put up by hybrid bees.

Prof. Benton—It has been my idea that we should place these Caucasian queens at the State Experimental Station and a few of them in the hands of skillful breeders in different parts of the country where they might be multiplied and put upon the market. In answer to one of the members, I would say, pick out the gentle bees for honey.

#### QUEEN EXCLUDERS, EXTRACTED HONEY AND SWARMING.

"On 10-frame Langstroth hives shall I use an excluder, not being on the ground in swarming time, for extracted honey?"

Mr. Hyde—I would answer no.

Mr. Andrews—We found in several hundred colonies we put on excluders and it increased the swarming from 50 to 75 percent for extracted honey.

Mr. Holecamp—Did you give plenty of ventilation under the hive?

Mr. Andrews—No.

#### SWARMING AND BEE-TREES.

"How can you hold a swarm of bees when you select the bee-tree?"

Mr. Dadant—I believe I understand what the gentleman means by the question. He thinks after a swarm has selected a tree that you will not be able to hive it because it will go to that tree. I know that a swarm can select a bee-tree and still be hived and abandon the idea of that bee-tree. We had near our apiary a tree with a hole in it and I saw bees at the hole cleaning it out, and I said there was a swarm in that tree, and there was a swarm out at the apiary and I hived those and never saw bees at the tree afterwards.

Mr. Andrews—Did you put brood in that hive?

Mr. Dadant—No, sir.

Mr. Hall—I have had a number of experiences the same as that of Mr. Dadant, and I am satisfied that they can be collected afterwards if they have a place to go. You can change them from where they have already gone to another place and they will, as a rule, stay where you put them. Under some circumstances they won't at all, but they generally will.

Mr. Reinecke—My experience has been if you put a comb or two of unsealed brood in, it holds them very well.

#### IMPROVING BEES BY SELECTION.

"Can any one race of bees be improved by so-called judicious selection?"

Prof. Benton—Yes, every race.

Dr. Bohrer—If it has reference to the working qualities I don't know whether they can or not.

Mr. Dadant—I believe we can improve their working qualities.

Prof. Benton—It does not need to be a matter of belief; it has been done with every race.

#### EXTRACTING UNSEALED HONEY.

"How much more honey can be obtained by extracting before the honey is sealed than if the honey is left in the hives as it ought to be?"

Mr. France—I wish to issue a protest against this idea of extracting unripe honey.

Mr. Putnam—How did Mr. France get his honey sealed this year?

Mr. France—I got it ripened, though it took from the time they gathered it till today, and it is in the hives yet, and it is capped over and the hives are standing three stories high, and they will stay there till spring, and it will be good honey, too.

#### BOTTOM STARTERS IN SECTIONS.

"How do you put the bottom starter in sections?"

Mr. Abbott—The way you put the top one in.

Dr. Miller—Put it in the same way you put in the top one; put in the bottom one first.



Mr. Hall—I am quite satisfied that I have a better way than Dr. Miller has. I have a Lewis foundation fastener. I don't see why any other machine that has a hot plate could not be adjusted to work the same as the Lewis machine. The Lewis machine is reversible. You can adjust it to put in the starter in three-inch sections or four-and-a-quarter. I take that plate out of the machine to the grinding stone and grind it till it has a sharp-cutting edge on each side, not that the edge is intended to cut but in order when you come to let it pass through the foundation it will pass through as leisurely as possible. In the next place I take the base box off which is just below where the hot plate is. I let that down just enough to make a little more room between the bottom of the section where it is in the machine and where the hot plate comes out. I let that down just as much as I want the bottom starter to be in the section. Then I cut a couple of finger-ways out of the head-block. Sometimes the foundation is inclined to fall away from you when you want to take the section from the machine, and by having the finger-way you can put your finger around and touch it slightly and that will hold it from tumbling away from you. You have got the machine all ready for work. Put the section into the machine, put in the foundation just as if you were going to have a foundation in without any starter at all. After it is stuck then insert the hot plate again, and that sharp edge will pass through the foundation so easily that you will wonder how it is done. That will leave the bottom starter standing there. All you have to do is to pull the section off again and turn it end for end, and put it back again and put the balance in there for the top starter and your work is done.

Dr. Miller—I believe I was the first one that started the bottom starter. One of the advantages of the bottom starter is that you are sure that the bottom of the starter will be in the middle. Another reason is that you are sure the section will be fastened to the bottom. In many cases if the honey is not coming in plentifully, especially towards the close of the season, a section will have a passage-way under it, and that bottom starter prevents everything of that kind. In other words, that bottom starter gives you a section fastened in all round. Before I used bottom starters, very often I had the starter swing clear off and fasten on to the separator, and it took me three or four years to find out why. I hadn't sense enough to know it was that bottom starter that held it there and didn't allow it to swing over the side.

Mr. Johnson—Do you save any foundation?

Dr. Miller—No saving of foundation at all.

Mr. Johnson—Do you make the two ends meet?

Dr. Miller—No, there is a space of one-eighth to a quarter of an inch between the two starters, and one of the first things the bees do is to fasten them together. If you put the foundation down near enough to the bottom so that it is fastened to the bottom it is sure to bulge to one side, and by cutting out enough to put two pieces in, the bees will make it fast at the top and bottom without any bulge or bend.

Dr. Bohrer—How wide do you make the bottom piece?

Dr. Miller—Five-eighths of an inch.

Mr. Gill—In answering the question, "Can you save any foundation?" I think you can by using a bottom starter. You can secure very good combs by using a half-inch or five eighths starter at the bottom, about an inch above, because frequently the bees will commence on that bottom and go up to the center. If a person wants to save foundation he can do it by using the bottom foundation, because the bees will fasten those places together where they meet.

Dr. Miller—The question asked me was, do I save any foundation? I say I don't. You can if you want to.

Prof. Benton—As a matter of fact you really lose by the amount that it takes to fasten the bottom starter.

Mr. Gill—You can secure combs fastened well at the bottom by putting on the starter and pulling it right off again, leaving one-half row of foundation cells, there and invert it.

Mr. Hershiser—Dr. Miller, as I understand, says he does not "make both ends meet." I thought he had been a successful bee-keeper! [Laughter.]

Mr. Dadant—Mr. Coppin, of Illinois, has a way of putting in a full sheet of foundation which does away with the trouble in regard to foundation sagging or leaving a space at the bottom. He splits the section in two in the center;

lays two sections side by side on the table or four halves, and lays a sheet of foundation upon them and puts the other four halves on top and fastens them together. That gives a full sheet fastened on all four sides. I never saw such honey as that presented by Mr. Coppin, it was so regular.

Prof. Benton—That practice has been followed in England for many years.

Dr. Miller—There is one objection to that, and that is that the outside of the section shows the split, and it is not so good looking a section.

Mr. Root—The method is English now, and very similar to the one described, only that the section has a groove cut almost through lengthwise and the foundation is dropped in between the grooves and the dovetail fastened together. We are selling annually hundreds of thousands of them to the British trade. We don't sell any of them in this country. I know our bee-keepers in this country would not bother with anything of that kind.

Dr. Miller—As a matter of curiosity will you allow me to say when Mr. Root was so small he didn't know anything about sections, we had the same thing in this country. They were made with that groove in the top-bar. That is the first kind of sections we had in this country, and they were a big nuisance.

Mr. Root—It was a square groove and slot around the section.

Mr. Sampson—This is my plan, if you could see it, for cutting the foundation in the section. I fasten the points together in the center, and I have very good results. The sections are always well filled and I never have any trouble.

Mr. Hall—I have tried in a small way by doing the same thing Mr. Root speaks about. Take twenty or thirty sections and place them together and rip them three quarters of the way through the section from end to end, leaving the bottom part of the section under it and putting them together, leaving that groove, but, as he said, they were a regular nuisance. I can put in 2,000 sections the way I do it.

#### FASTENING SECTIONS IN FRAMES.

Dr. Bohrer—A great many bee-keepers ask me as to what I regard as the best plan of fastening comb foundation in shallow extracting frames. The grooves in most of the frames sent out are very shallow; and there is a wedge that the companies use. What is the best method of fastening comb foundation in shallow frames?

Mr. Hall—Get a common machine oil-can, one that has a good deal of spring in the bottom, put a short snout on it or cut the one off that is already on it. Then have a frame to put the extracting frame into so that there will be a little board just to fit the inside of the frame that will come just half way up or half the depth of the frame, right up to the edge of the groove. You must keep that can filled with a mixture of beeswax, and I put a slight bit of rosin in it to make it a little harder. I put the frame on this other frame, slip the foundation into the little groove, take the little oil-can which is sitting on the foundation fastener to keep it warm. You don't want it too hot because if it is it will melt the foundation, and if it is too cold it will freeze in the nozzle of the can. When you get the foundation into the little groove turn the frame up slightly so that the weight of the foundation will fall into the groove and stay there. Take the can and run down a little drop on the end of the foundation and right down to the bottom. Then tip it the other way and let it run back to cool, and then take it off, and thus continue until it is finished.

Mr. Abbott—We have wedges in all our frames and don't need any oil-can.

Mr. Miller—May I say that it is a matter of locality. Mr. Abbott is entirely right; in proper localities there is nothing better than the wedge; I wouldn't want anything better than the ordinary wedge that is sent out, but other bee-keepers say they do not stay in.

The President appointed the following permanent press committee: J. M. Hambaugh, of California; H. H. Hyde, Texas; James A. Stone, Illinois; Frank Rauchfuss, Colorado; E. S. Lovesey, Utah; Prof. H. A. Surface, Pennsylvania; O. L. Hershiser, New York; J. C. Stewart, Missouri; Frank Benton, Washington, D. C.; E. Whitcomb, Nebraska; E. Secor, Iowa; Dr. G. Bohrer, Kansas; F. W. Muth, Ohio, and J. J. Cosby, Indiana.

## REPORT OF COMMITTEE ON CO-OPERATION.

The President called for the report of the committee on honey-organization. Mr. Pressler presented the report as follows:

We, the committee appointed to name the first five directors to form the National Honey Producers' Association, beg to report as follows: Fred. E. Brown, California, chairman; N. E. France, Wisconsin; J. U. Harris, Colorado; W. L. Coggs, New York, and H. S. Ferry, New York.

Signed: F. E. Brown, H. S. Ferry, E. E. Pressler, J. Q. Smith, E. S. Lovesy, Committee.

On motion the report was adopted.

## COMB OR EXTRACTED HONEY?—HOLY LAND BEES.

"Shall we produce comb or extracted honey?"

Mr. Dadant—Yes, both.

"Give your experience with Holy Land bees."

Mr. Laws—I think this race of bees has been reported as being very cross. I have not found them that way. By judicious treatment they are not so. I think I could find a good many bee-keepers in this audience who will say they are a very quiet race of bees, and they are fine honey-gatherers. They are reported as heavy swarmers. If you give them room enough they will not. The remarks as to the Caucasian bees will very well apply to the Holy Land bees with reference to swarming. I find the objection that has been raised to the Holy Land race of bees has been raised also against the Cyprian bees, and I think those persons who have raised those objections are persons who have not been acquainted with the Holy Land bees. They are fine breeders and they do not breed out of season. In producing comb honey they cap their honey a dark, watery color. They use the least amount of wax of any bee I have seen in the manufacture of their comb. I can pick out a comb of honey that has been built by the Holy Land bees, the capping being so thin and the wax so brittle that it will leave the honey.

Prof. Benton—I would like to ask the gentleman what he calls Holy Land bees? Where do they come from?

Mr. Laws—My importation came about ten years ago from the city of Jerusalem. Since that time there has been another importation. Although I reared 115 daughters from that queen I had to discard her. They came from a sister of Mr. Baldensperger.

Prof. Benton—In regard to the Holy Land bees, it may be remembered that I went to Palestine and Syria, in the year 1880, and remained in that part of the world for several years, and I handled a great many bees in Palestine, and I brought those bees to Germany and also to this country. I pointed out in my work in connection with those bees the fact that southward from Mount Carmel the bees are quite different from those north; and the term "Holy Land" was invented by Mr. D. A. Jones because he thought it would sell the bees, and under the term Holy Land he grouped these two types that are very different, so different they deserve to be called separate races. The first bees that were sold under that name were really hybrid bees, crosses between Syrians and Palestine bees. I insisted on calling those southward from Mount Carmel the Palestine race, and those northward the Syrian race. Confining myself strictly to the race of bees of Palestine I want to speak of some of their qualities which as a race they possess. They are good, industrious bees in a northern climate; they breed out of season and when deprived of their queens are very prone to have laying workers within a very short period, oftentimes before they have time to rear a young queen, and will get all the worker-comb stuck up with brood which is very objectionable. They rear a vast number of queen-cells; I don't know that that in itself is very objectionable, but it inclines one to believe they would swarm very freely, but I think that can be largely overcome. I have found them bad-tempered, all in all, and I prefer to handle pure Cyprian bees to pure Holy Land bees. I have gone on the Island of Cyprus without a bee-veil, or when I had to use a bee-veil, with very little smoke, and I wouldn't attempt to handle either Syrians or Holy Land bees in that way; I couldn't get along with them nearly as well as Cyprians. The bees of Palestine are more nearly like the Egyptians than the Syrians.

## "BABY NUCLEI" IN QUEEN REARING.

"Are baby nuclei advisable for the ordinary honey-producer? Should baby nuclei have brood given them or not?"

Dr. Bohrer—In starting up the colony I always put in brood and I never have very much difficulty. Give them a well-matured queen-cell and they will probably hatch in three or four days, and I never had them leave the boxes, or very seldom; if they did they would generally cluster and I would put them back. I got the idea from Mr. Langstroth in the summer of 1864. He had a number of nuclei at that time. These queen-cells were finished up in large colonies and then transferred to these nuclei swarms.

Mr. Gill—Let the honey-producer buy his queens.

Prof. Benton—I would suggest the honey-producers learn how to rear good queens and rear them well. I believe he should avoid the small nuclei entirely. Give them brood and make them pretty good size.

Dr. Miller—Does Mr. Gill buy his queens instead of rearing them himself?

Mr. Gill—I buy all the queens I can't rear from natural cells. Of those that are produced under the swarming impulse, I use all I can, and if I need any queens out of season or any other time I buy them. I produce honey, and I always want a laying queen under every super, and if I haven't got one I buy one.

Dr. Miller—He said that the ordinary honey-producer should not use certain nuclei because he should buy his queens. I want to know whether he buys more queens than he rears himself.

Mr. Gill—That is pretty hard to tell. I bought more queens this year than I made increase. I use all the best selected stock I can from natural cells that are built under the swarming impulse at the swarming season, and what I can't use I throw away. At any other time of the year if I want a good queen I get one from a man whom I know rears good ones. My bees are being worked for comb honey and I have no time to rear them. I bought last year nearly 300 queens, and this year 200. I think a good queen will pay for itself in ten days in a good colony of bees in producing comb honey. I don't aim to make much increase because I am working for comb honey, and I want big swarms, and I don't want any queenless bees. I have orders for queens all the time I use them that way. If you need a queen it is better to buy than to rear; you can't get along without her.

Dr. Miller—In the first place, as to buying queens in certain times of the year, instead of rearing them myself, I don't believe that a queen-breeder can tell better than Mr. Gill what kind of queen is good for the work. I believe if he will breed from his best honey-producing queens he will get a better queen than he will get from the average queen-breeder.

Mr. Gill—I don't buy from the average breeder; I buy from the best.

Mr. Reinecke—My experience has been that it does not do a queen any good to come through the mails. I have had queens from different breeders, and good ones, and I have found some that were no good, and their daughters were excellent, so it shows that it may have hurt them.

Mr. Gill—I must get up in defense of the queen-breeder; that he can and does send a good queen through the mail, because mine come through the mail, and I buy just as good ones as I rear. I am not prepared in the spring, I am not prepared in August, I am not prepared with my cells at that time, and my bees do not furnish them; I buy them, and I just get as good queens as I can rear. I bought 200 queens last year from a man who took them out of his full colonies in the breeding season and there were no better queens in the United States, but they occasioned me \$200 damage, and I have only two of them left.

Mr. Root—I would like to answer part of both questions. In regard to these baby nuclei for the average honey-producer, with the state of knowledge about baby nuclei now I do not know that the average honey-producer had better fool very much with them. The first and second years we tried them we did not make them work, but the third year we did. I think what we have done others can do. I told Dr. Miller in answer to a question that he must have brood to make them work, but I have found out they work without as well as with. When we come to know more about these little nuclei I believe Mr.



Gill can rear queens, as a matter of economy. I don't say they are any better. It is hard to say whether those little boxes about 3x4 scattered all around the yard, with just a few bees flying about, will be any good, but they will defend themselves, and those queens will be hatched out there and will be just as good as any other queens. Mr. Gill mentioned one important thing, and that was taking queens out of a strong colony in the height of their egg-laying and sending them through the mails, that it was a bad thing to do. We take these baby nuclei, put perforated zinc over the entrance, and send them out, and there does not seem to be any bad effects coming from it. In regard to the question of whether a man should rear his own queens or buy them, I think it varies a good deal according to the conditions. Some seasons of the year it is better to buy them; there are some seasons of the year that the queens do not suffer in the mails.

Mr. Laws: I want to answer both sections of that question in the affirmative. I think it is profitable for the honey-producer to rear queens with the baby nuclei; it is the ideal thing; the great trouble is tearing up the full colony. I went into the apiary a little while back and got there just in time to find virgins hatching out; in fact they had been held back in the cells by the bees; there were eighteen hatched out; we had some of those little babies and I rushed to the hive and we got those virgins and put them in those boxes as fast as they would come out. We put those nuclei in the shade, and after awhile carried them out to a new location and I got about all those queens in. A man is not prepared for queen-rearing with large boxes. If he has large boxes it is a great deal of trouble to carry them around, to get the nuclei home, and to stay after he puts them there. With the small boxes he can put them in the shade, and he can take them and scatter them around in the brush anywhere, and after they remain with the queen for a while they behave like a newly hived swarm. As Mr. Root says, one or two bees at the entrance will guard the hive just about as well as a large swarm, and you will find the queens mated shortly afterwards. I have mated 150 queens with the bees of one hive. You will have the cells built by a populous colony, and you can get the queens all reared at the beginning of the season. We want no brood in those nuclei frames. I state this because I have had considerable experience. I think when we get a little more light on the subject you will think as I do.

Mr. Gill—It is not proper perhaps at this time to state why it would not be practicable with me, but when it comes under the head of swarming or shook swarms then I might explain it. Only I shall say this, that the field we operate, with three of us to work with a thousand colonies, is about eight miles wide and twenty miles long, and we see an apiary today and then we don't see it again for six days, so that it would not be practicable for me. Under the heading of increase I will tell why I buy my queens at certain times.

Prof. Benton—I remember getting a colony of Syrian bees from D. A. Jones, of Canada, and I was transferring them from one of their bee-hives, which is a crock or water-jar; we broke it and cut the combs out, and transferred them into frames, and in doing this we found they had cast a swarm and were ready to cast a second, and in every handful of bees I took out I would find four or five queens. I counted 250 well-developed queens that I took out of this colony. The question was, What should I do with them? I made baby nuclei. I got these queens mated in those baby nuclei. That was very well as far as it went. That was the spring of the year. We could take those queens and send them away, and did do so. If we attempted to supply a queen-cell to that nucleus there was all sorts of trouble. My proposition is this: In the long run it would not be profitable. Self-sustaining nuclei that can be fed and bees added to if necessary are valuable nuclei in the long run; they are miniature colonies. They are not for queen-rearing but queen-mating, and having them ready as reserve queens. Those in the long run are more profitable.

Mr. Weber—I commenced it and I found I had perfect success until the robbing time came, and then came the trouble; I couldn't keep the robbers away, and particularly this year. I heard from a party in Texas who had made the same complaint.

Dr. Miller—I would like to ask this question: If one or two hundred queens be mated with the bees of one

colony, if they should all go to the dogs afterwards, where is the difference?

Prof. Benton—You want one or two hundred more, and you have trouble to establish all these colonies, which is no small amount of work.

Mr. Laws—Mr. Benton relates that when he pulled out each handful of bees he would find four or five queens, and in the first place he couldn't hold them because they didn't have feed there. In the next place I believe some one raised the objection that they could not hold these bees without honey; that is right, they have to have feed. If you take a frame eight or ten inches by four or five inches and you have one hundred bees it will last those bees for six months and they will increase and keep up their strength to a certain extent in those little boxes.

Mr. Root—This question of robbing I find can be taken care of entirely by feeding out-doors. It keeps all the colonies good-natured. I didn't believe it practicable to feed out-doors until some one reported it was, and then we began doing it. We fed slowly several gallons a day. We fed those baby nuclei. That removes one of the objections. Those baby nuclei run out and they seem to get a little contrary, but by continuous feeding this will be overcome.

### SEVENTH SESSION.

On Friday, September 30, at 9 o'clock a. m. the President called the convention to order, after which Mr. Laws, of Texas offered prayer.

Mr. Gill—We have been very profuse in our thanks for everything that has been done for us. I know I was on a little committee and we were thanked, but I believe that the officers of the National have not been thanked, and before I sit down I am going to move that the officers of the National Association be thanked for their efficient services in discharging their duties. There is one National officer who cannot live on votes of thanks and the laborer should be worthy of his hire, and he surely is, and that is the general manager, and I move that the Board of Directors be instructed to devise some means to pay the general manager amply for his splendid work.

Mr. Holekamp—I second that.

Mr. Gill put the motion, which on a vote having been taken, was declared carried.

Mr. Laws moved, seconded by Mr. Holekamp, that a vote of thanks be extended to those who had presented papers before the convention, and also those who had in any way contributed to the entertainment of the members present. [Carried.]

Mr. Stewart moved, seconded by Mr. Laws, that a vote of thanks be extended to the managers of the Christian Endeavor hotel who had placed the use of the Auditorium at the disposal of the convention. [Carried.]

Pres. Harris—I wish to introduce Mr. Adams, Mr. F. W. Hall and his little daughter, Miss Annetta Hall. Mr. Adams himself has put forth a great deal of labor in getting up this little souvenir, termed "Honey Fairies." We should in this life be mindful of our duties, and let nothing escape us that would reward them for what they have done for the bee-keepers' convention, and Mr. Adams will in his own way read to you this introductory greeting, and then Mr. Hall and his little girl will give each member one of these souvenirs so that you may take it home with you. I understand that it has cost Mr. Adams considerable to get up this little souvenir, and I know when you take it to your homes you will appreciate his kind work in your interests.

Mr. Adams—I have heard several say this was the greatest National convention that had ever convened. I have heard very many say that this was the largest Fair that has been held in this world. These two events have come together. We look at them together today. In anticipation of this—I knew it would be so—I thought it was fitting we should have something that would bring the two together and make, as we sometimes use the word, an emulsion, and run them together. This is one of the great events in our lives, and a mile-post we will look back to as long as we live, and which we will never forget. You will find my thoughts better set forth in the verses.

The President then called for a song from Mr. and Mrs. York, who responded by singing "The Wheat and the Tares," the words of which were written by a convict in a penitentiary.

At Dr. Miller's request, Mr. and Mrs. York also sang a sacred selection entitled, "Not Ashamed of Jesus."

On motion of Dr. Miller, duly seconded, a hearty vote of thanks was tendered to Mr. Adams and to Mr. Hall and his daughter in connection with the presentation of the souvenirs to the convention.

Mr. Lovesy—I would like to say a word on the organization question. Contemplate the vast multitude of bee-keepers and then consider the little organization that we have. We have not sufficient organization to reap or receive the benefits we might otherwise get. Consider the aid and support we might get from the State Experiment Stations and the Government which we cannot now use because we are not united and not organized so that we can take advantage of those things. There are many things in the United States we could get if we were organized, but which we cannot get without organization.

Mr. Gill—We have had perhaps enough talk about organization, but I wish to say a few words. I think it was Mark Twain who said: "You don't get anything in this world without asking for it, and then you insist on it." In Colorado we have secured the passage of a number of bills with reference to spraying, and other matters, such as a pure honey law; we have insisted on these things. They can be obtained, but it is necessary first to have merit. Human nature is much the same the world over. If you have something with merit in it they will take hold of it irrespective of politics.

Pres. Harris then called upon Mr. Charles Stewart to present a paper on foul brood.

Mr. Stewart—Your general manager asked me to give you a paper on black brood. Perhaps I should say here that according to our New York State authorities black brood is considered a type of foul brood, and we call it by the name of black foul brood now to make a distinction from the old or malignant foul brood.

#### BLACK FOUL BROOD.

Black foul brood first made its appearance in New York State in Schoharie county, among bees bought from a Southern State, and was at first confined to a small area, but soon alarmed apiarists by the great mortality it caused among bees as well as the rapidity with which it spread.

As a rule the germ of disease affects the larvæ before it is capped, and causes it to have more of a yellow cast than it usually has in a healthy state, causing an unusual motion as if in distress. Later it dies and sinks in a shapeless mass in the bottom of the cell, assuming the color of coffee with a little milk added. It now gives off a sour, disagreeable smell, quite different from the glue-pot smell of ordinary foul brood, and unlike foul brood, refuses to be drawn out in a rubber-like string.

The bees seem to recognize the diseased cells and do not cap them, so that a very large percentage of the brood-capped hatches, although an occasional depressed or perforated capping similar to foul brood may be found. The dead larvæ may readily be removed from the cell after it has dried, differing again from foul brood which attaches itself closely to the cell.

The effect of this disease varies greatly in different apiaries, as well as in its effect on individual colonies in the same apiary. This was hard to explain at first until we learned that it proved most destructive in those colonies weakest in vitality. Further research proved that the average vitality was much lower in some apiaries and hence succumbed more readily, just as a man is more susceptible to disease whose vitality is impaired by overwork, improper nourishment, exposure, or from various causes.

A dearth of honey causes the bees either to overwork, or else suffer from lack of nourishment, thus impairing their vitality, and so succumb more readily to disease. To have disease, the germ of that particular disease must in some way be carried to the hive. How the germs were carried from a diseased apiary to a healthy one four or five miles distant puzzled me greatly until I proved beyond the possibility of a doubt that bees from those diseased apiaries could be found in apiaries at least four miles distant, thus carrying the disease with them. Such being the case with apiaries, how much greater is the mixture of bees from hive to hive in the same apiary. This can best be illustrated by citing

the fact that in an apiary with but one badly diseased colony, the colonies on either side of it in the same row will be found diseased, diminishing gradually in the amount of affected brood as we increase the distance from the source of contagion. This also seems to hold good in regard to the hives in the rows both before and behind the badly diseased colony, but to a very much less extent. Black foul brood spreads more rapidly where the hives are close together. The same of course holds good with the spread of disease from yard to yard.

In this paper I have already foreshadowed a method of treatment as follows:

Have apiaries isolated as much as possible.

Do not set colonies too close together.

Keep all colonies strong by having young, vigorous queens rich in vitality. Introduce new blood generously each season, especially that with a dash of Cyprian blood in it.

Shake all diseased colonies on clean frames of comb foundation as soon as discovered, and feed a little sugar syrup for a week to restore their vitality.

If feasible, establish a hospital apiary in some isolated place for the treatment of diseased colonies, from not only your own but also your neighbors' apiaries, moving them at night and treating all at one time, and moving home when cured to give place for a new lot.

By following the foregoing method of treatment with all of its minor details, which cannot here be given, together with a helpful enforcement of a wise foul brood law, a new order of bee-keeping has been brought about in Eastern New York. The box-hive man and the slovenly bee-keeper with his scrub hives and methods has given place to a bright, clean class of bee-keepers, who have a conscious power to succeed even in the face of disease.

This paper, which has been written as I have traveled from apiary to apiary, I feel would be incomplete did I not pay a tribute to those who framed our foul brood law, as well as to the Department of Agriculture, who have made strenuous efforts to carry it out. The bee-keepers of New York State owe much to the wisdom of this law for where once disease blasted men's hopes, and threatened even the loss of their homes, with a legacy of empty hives has arisen fine apiaries where men proudly exhibit their tons of honey.

CHAS. STEWART.

Mr. Holekamp—Is there a difference in this black foul brood from the common foul brood?

Mr. Stewart—The black brood, as I said, appeared in New York State at first and differed materially from the old type of foul brood inasmuch as the brood dies just before it is being capped, and we find very little dead under the capping; while with the black brood the greater percent dies under the capping. Foul brood is stringy and black brood is not, and the smell is different. The spread of the disease also differs; it spreads very rapidly. You will find that it has spread four or five miles away in the course of a few weeks, so that those things mark it as a distinct type of foul brood.

Dr. Bohrer—I would ask if in feeding the bees, after treatment, you add any germicide to the food, such as citric or salicylic acid, or boracic acid?

Mr. Stewart—We have used those things throughout the State and we recommend them to use those if they choose, although we never got any practical results from a germicide fed in syrup. While it seemed to hold it in check we did not want our bee-keepers to rely on that as a cure.

Mr. Cary—I would like to know if the Cyprian bee is more immune from the disease than other bees?

Mr. Stewart—We find that the Italians and some of the newer races of bees will stand the disease much more readily than the old-time blacks. For instance, we find yards where the vitality is very low from some cause, and those yards will become ruined in a single season. I have seen a yard containing 60 colonies of bees with those bees weak in vitality where fifty-nine of them were of this type of bee and one colony of Italians. The whole yard at the end of the season was dead, and the one colony had everything full of honey, and the sections were all filled, I don't know how many sets of them, and they never showed any trace of the disease; and this man being isolated somewhat, and supposing this colony was sure to die with it, let out all the wax in the solar wax extractor, before the bee-inspectors had become



organized. The result was that this colony continued about five or six years and it never showed any sign of the disease. I have noticed those bees that had a dash of Cyprian blood in them seemed to ward off the disease much better.

Mr. Cary—Do you mean in comparison with the Italians?

Mr. Stewart—I am comparing them with the ordinary black bees throughout the country. You will find that farmer bee-keepers and some of those called experts have black bees and rather poor hives, and get started with Italians and they drift back and they have rather a poor class of hybrids, and that class of bees succumbs readily to this disease; we have asked all of the bee-keepers where any disease existed to replace them with either Italians or Cyprians, or even Carniolans, in preference to any of the black bees.

Prof. Benton—How do Carniolans in this list compare with others?

Mr. Stewart—We find the Italians will stand disease a little better than the Carniolans, although we have never lost a whole apiary of Carniolans from this disease yet, that I know of. My personal observation would indicate that some particular strains of Italian bees will stand it a little better.

J. C. Stewart—I would like to cite you a case similar to one you have been describing, where you said the larvæ turned from a white to a yellow color. The larva, we will say about two days before it should be capped over, had begun to swell, and had formed a yellow spot on one side of the larva about midway from end to end and in the center of the body, and that spot begins to enlarge and enlarge until it develops in nearly the whole body of the larva, and this body has swollen so that as soon as you touch or puncture it it will burst and give off a watery substance. Do you consider that black brood?

Mr. Stewart—It is pretty hard to recognize the disease from so meagre a description, but I never found that in black brood. I don't know that I ever came across that particular feature. It would look more as if there were some pickled brood about it.

Mr. Whitcomb—You made some remark about your ability to resist disease. Do you believe one colony has any more ability to resist disease than another, or is it on account of the robbing propensities? Some do not go out and rob so much and the hybrid-black bees are always robbing.

Mr. Stewart—At one time we did lean to that idea, but we soon got our minds disabused. Take the instance I have just cited of the sixty colonies. My friend told me they could see that one colony gathering right in that yard and they showed no sign of the disease.

Mr. Whitcomb—Take it from generation to generation, and you put the honey under the microscope, and you will find that the disease is progressing.

Mr. Stewart—If you talk to the bacteriologist you will find that honey is not a medium for the propagation and growth of bacillus alvei.

Dr. Miller—When black brood was first known it was considered a very terrible thing, and at this later date when they have had a chance to fight it I would like to know how they compare it with our foul brood. You would dread the affliction of the ordinary brood, now could you put it into percent as to your dread of your black brood?

Mr. Stewart—It is pretty hard to compare the two because I have had so much more experience with the black brood than with the foul brood. While we occasionally find a little spot of it in New York State I have found foul brood where it has been in a couple of yards to an important extent for four or five years. If you had black brood in a single apiary of New York State it would largely depend on the weather or honey conditions how fast it would spread. It is a disease that thrives best in a starvation season, when no new honey is coming in pure and fresh from the flowers; and the result is that I am a little at a loss to know how to place a percentage on it, but I should a great deal rather have the old-time foul brood than the black brood.

Dr. Miller—Another question. These two diseases, the scientists tell us, come from the same cause, bacillus alvei. One is puzzled to know why, and yet we know that there are different types of the disease. But if they both come from the same cause, do they merge one into the other? Will there be shades of it from one to an-

other, or are they distinct things, neither one ever changing into the other?

Mr. Stewart—We have never known it to change from one to the other. It always preserves these peculiar characteristics of its own.

Pres. Harris—Is it not a fact that in the insect kingdom as well as the animal kingdom, and you take it among the human family, that the conditions surrounding all diseases have a very great deal to do with it? You find it sometimes in a light form, and other times in a severe form, and it is the condition in which the bees are and the surroundings.

Mr. Stewart—Yes, I believe it is.

Mr. Root—There is one fact that has not been brought out. I would like to ask Mr. Stewart whether he has diagnosed samples of black brood that have been sent to him from other portions of the country as the same as the black brood he has in New York State?

Mr. Stewart—I had a sample brought from Michigan that I was at a little loss to know just what it was, while the sample was a little old, something over a week. It is pretty hard to take a little sample of it home and decide just what it is, especially after it has been out of the hive for a week or more, but I didn't hesitate in pronouncing this similar to our black brood in New York State. Your general manager has handed me a paper that was sent in by another inspector from New York State, and perhaps it would be well to read that. The writer is W. D. Wright.

#### BLACK BROOD (SO CALLED) IN NEW YORK, VS. FOUL BROOD.

Contrary to the result obtained from former investigations and the general belief that the New York bee-malady was an entirely new and distinct disease, the recent extensive investigations by New York State, exhibits are expected to prove that the disease prevailing here, is nearly, if not quite, identical with that described by European authorities as foul brood—bacillus alvei.

There is apparently a variation in the exterior characteristics of the former from the latter, such as a greater proportion of the *unsealed* larvæ dying, consequently fewer sealed cases containing discarded matter, sometimes a black or yellow spot on the larva when first attacked, and only occasionally ropiness. In the advanced stages, either is extremely foul, and emits a nauseating stench. Also, either yields readily to the same treatment.

European bee-masters claim that there are two forms of foul brood, viz.: the dry or mild, and the moist or malignant. From their description, I believe the mild form tallies with what we call pickled brood, and the malignant probably the same as our foul brood or black foul brood.

I have observed for several years past, that the pure, three-banded or leather-colored Italians were much less subject to the disease than other races, so that I universally recommended Italianizing with such strains. If this is done in diseased apiaries of black or hybrid bees, before or soon after treatment, the apiarist will stand a much better chance of banishing, or at least keeping the foul brood in subjection.

I was surprised recently, in referring to Quinby's bee-keeping, edition of 1865, to find this statement in regard to Italian bees being less affected with foul brood. "Since their introduction into my apiaries, the number affected with this disease has diminished five-sixths." Mr. Quinby also states in his description of the disease, that the dead larvæ were *black*. However, a larger proportion of them was sealed over than in our black foul brood.

I will also quote from Dzierzon's mode of treating foul brood, published in the *Bienenzeitung*. He says:

*"To prevent the disease from spreading in a colony, there is no more reliable and efficient process than to stop the production of brood, for where no brood exists, none can perish and putrefy. The disease is thus deprived both of its ailment and its subjects. The healthy brood will mature and emerge in due time, and the putrid matter remaining in a few cells will dry up and be removed by the workers. All this will certainly result from a well-timed removal of the queen from such colonies."*

This is recommended by the author when but few colonies are diseased, and those discovered early, but it is good practice even at the present day, and in the

treatment colonies may be combs a the comb after the any col the seas before t in the c with for results v strength ter than

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treatment of our black foul brood in certain cases, viz.: colonies that we wish to treat by the formalin process, may be unqueened or the queen caged, then after the combs are free from brood, the honey may be extracted, the combs thoroughly fumigated and returned to the bees after they have consumed the honey in their sacs. Also, any colonies that we may wish to brimstone at the end of the season, by removing the queen three or four weeks before the end of the honey-flow we will have no brood in the combs. They could then be extracted, fumigated with formalin and preserved for future use. The best results would be obtained from colonies of fair to good strength, as they would clean up the disease much better than weak ones.

For those who wish to preserve their apiaries as far as possible from the ravages of this disease, and do not wish to use the formalin treatment, the shaking process is recommended, stacking the brood, and shaking the same combs again three weeks later.

In regard to the name of our present malady, I will say that as everything emanating from *bacillus alvei* is regarded as foul brood, and a further addition to the tide seems to be necessary to identify this particular phase of it, we may call it "black foul brood." Because an error was made in the start in naming it black brood, is no reason why that title should be perpetuated.

The name was also very unfortunate for us when it was given, as it upset and rendered void the New York law as far as the prevailing disease was concerned, and necessitated an amendment at the next session of the legislature. However, we are happy to say that matters are gradually becoming righted.

With careful, progressive apiarists, the outlook at the present time is quite favorable, even in districts where the mortality has been greatest, and the business has been conducted at a good profit. W. D. WRIGHT.

Mr. Root—I would like to make a statement from my knowledge of these two diseases. You perhaps remember about twenty odd years ago we had foul brood at Medina, and we had it very severely, and it was real foul brood; it roped and had all the characteristics, as given in the European journals at the time. Now, this black brood departs itself in a very different way; it is not ropy, has a different odor altogether, is of a watery consistency, and when Mr. Thos. Wm. Cowan, editor of the British Bee Journal, was at our place he examined the foul brood we had there; he had his microscope and looked at the *bacillus alvei* and said it was exactly the same thing as they had in Europe. Last summer I sent a sample of the foul brood that has been found in our vicinity to the bacteriologists in New York State and after an examination had been made of it a report came back that it was not the same thing as the black brood of New York State. That it was not *bacillus alvei*. There are some things there that I do not understand. Thos. Wm. Cowan examined the foul brood that I had seen and called it *bacillus alvei*; these bacteriologists examined that same thing and say it is not the same. I wish in the Department of Agriculture they could investigate that question and have it cleared up; there seems to be a conflict of opinion among authorities.

Mr. Johnson—In the last paper read the suggestion is made of shaking the bees and putting away the comb for three weeks. I would like to ask if it would be safe to use those combs again without purifying or cleansing.

Mr. Stewart—I don't think he wished to convey the meaning that they were to be used again in three weeks, but rather he speaks about stacking the brood and then afterwards when the combs are cleaned out to use formaldehyde on the combs. We cannot be sure of this treatment. In some cases it succeeds, in other cases it fails, perhaps owing to a poor grade of formaldehyde. Our experts have been making some tests of what has been sold on the market and find it is largely adulterated and therefore everybody did not get the same results. In regard to this other treatment we speak of, it is sometimes necessary in order to save the brood of a part of your colonies that are diseased early in the season, while as the honey-flow opens we treat the strong ones and stack the brood on the weak ones, and in perhaps ten days that makes the weak ones strong, and you can shake those and you have bees enough to live and perform the labors of the hive until new brood is hatched.

Prof. Benton—As a comment on what Mr. Root has brought up regarding the taking up of this subject I desire to say, shortly before coming here, I was asked to hand in estimates for the fiscal year for apiarian work beginning July 1, 1905, and in those estimates I included an item of \$1,500 for an investigation of these bee-diseases. It rests with you to see that that goes through. If it is received by the committees and congress, and if it passes we will employ a skilled bacteriologist and let him go to work to straighten the whole matter out. But this year, as Dr. Wiley indicated, there must be a united effort to see we get that in addition to our former appropriation.

Mr. Gill—I want to enter a few words of caution to amateurs in this treatment of disease; our work goes out and it is dangerous for amateurs. Experts will do as they have a mind to, and it is safe to let them, but I would advise any amateur attempting any fad in the matter of treatment, when he has doctored his combs to make them into beeswax, and when he has doctored his honey either to burn or destroy it. All the drugs in the hands of amateurs are not a success. When it comes to the treatment by shaking or driving be sure you do it a second time. The proper media for increase of the germs is in the larvae, the germ itself is in the honey, and the danger lies in the honey. Bury it or burn it up. I am speaking for amateurs alone. I have had more experience with foul brood than I hope I will ever have to have again. I have had to treat from 25 to 150 cases every year, but it is getting less. I have apiaries that are entirely clear from it, and remain so, and then in a year or two up comes some of it. You can have all the law and legislation you wish, but we have got to contend with foul brood, the same as the human family must contend with typhoid fever. I believe there are sections of the country on account of the flora, soil, atmosphere or humidity that are more immune from disease than others. I have seen sections where it seemed hard to spread it, and other places you couldn't keep from having it all the time. But it is safe at all times to the amateur to be sure of what he does. If in the fall you have had a bad case, use fire; in the spring, if you have something worth saving, starve them pretty near to death, then put them on clean combs, then when the honey season comes, the best plan is to turn them into clean, new hives, but be sure you know what to do with those old combs; take care of them, and be careful, and you will be rewarded.

Dr. Miller—Prof. Benton tells us it lies with us to secure so and so. Now, he supposes we common, everyday bee-keepers are smart enough to know all about what that means. I would like to have him say distinctly what he wants us to do.

Prof. Benton—What I mean is simply this, that when the Bill which will go before Congress making appropriations for the United States Department of Agriculture has been reported, when it is in the committee's hands, and then later on when it goes to the House and to the Senate for passage, every member should see that both of his Senators and the Representative from his district are touched up by a short letter to the point, stating we are interested in seeing work that affects our pursuit favorably considered by your committee. You need not say, we want ten or twenty thousand dollars, but simply favorably considered; we wish to see our interests represented, and there are measures included in this Bill in which we are vitally interested; will you give them your support? Merely a touch-up of that sort from all over the country, and particularly any member who is a member of the committee on Agriculture, would affect the purpose probably.

Dr. Miller—That is good so far as it goes. We don't know enough about these things we want to do. Would it be asking too much of Prof. Benton if he would, when some bill comes up of that kind, tell us through the bee-papers somewhat distinctly what we are to do?

Prof. Benton—I will do that. There is not only such legislation as that, but sometimes a pure food bill has been before Congress; it is a good thing to have that kept track of, and it is a thing that every bee-keeper is interested in seeing passed, and might influence very largely in matters of that sort. There are sometimes matters affecting the duties on honeys.

Dr. Miller—I think if Prof. Benton will do that it will help very largely.

Mr. Smith—Along this same line, and in view of the



fact of the wide-spread of bee-diseases over the country, and the further fact that most of them are due either to carelessness or ignorance, would it not be a good thing to have a little leaflet issued on the prevention of these diseases? If there is none extant I would move we have a lot of them printed for the purpose of parceling out among our members and distributing, and for our local institutes throughout the country for distribution among the farmer bee-keepers.

Mr. Lovesy—In my experience I have noticed a number of times that foul brood has turned to black brood. Just as soon as the bees commence brood-rearing in the spring I go very carefully and look over the brood; pick off the caps of any I have any suspicion of, and I often find the larvæ in there. If that is the case I know it is going to be foul brood, pickled brood, or black brood, or something of that nature. Then we transfer them and put them into a box on the old stand and starve them for three or four days and put them on starters and feed them up. In this connection in regard to foul brood laws, have something which affects you. Don't have a State law. There is no State in the Union that has any law at all that suits the other States. Our law reads that any five men in any county where the disease exists may petition the County Commissioners and they shall appoint and pay the inspector for the time he occupies in his actual duties among the bees; and it provides he shall visit all bees. He is required to visit every apiary once a year. If there is anything wrong with the bees he attends to it, and if any time through the year a bee-keeper suspects anything wrong with the bees he calls on the inspector and the inspector visits them.

Dr. Bohrer—With regard to getting a new queen in such cases I would deem it entirely unnecessary, because the germ of foul brood is found in the food in the stomach of the bee, and so soon as the food has been disposed of and has passed through the system, the queen is no longer liable to transmit that disease to her progeny. I want to recommend to every bee-keeper with reference to foul brood that his cure be radical and permanent.

Mr. France—Bearing on this same line of foul brood, perhaps I am wrong, but I think not, the father of our authority in the United States from a practical standpoint is William McEvoy, of Canada. I went down to New York last winter more especially to meet him in counsel on this subject than any other, but Jack Frost beat me out, and I failed to meet him. I said, "Be at this convention," but when the critical hour came he could not come.

Mr. Reinecke—Could the disease be carried by imported queens?

Mr. France—This is a question of great importance both to queen-breeders and the bee-keeper himself. Is there danger of foul brood by buying queen bees from abroad? Yes, and no? I would not hesitate to buy all the queen-bees a foul-brood apiary had, and introduce them into my hives, provided when they came every queen was taken out of the cage and put into a new, clean cage, and fed sugar syrup forty-eight hours, and then introduced, and then destroy the cage she came in. It is the food that is in the cage, and not the queen.

Mr. Taylor—I think it is fourteen or fifteen years since I first had foul brood, and I have been a good deal interested in it, and have watched it and have not been terribly anxious to get rid of all of it as I like to see what can be done with the thing. At one time I had a good, strong colony of bees that was queenless. I had another colony that had foul brood well developed, and for the purpose of satisfying myself as to whether there was much danger of getting foul brood from a queen, I took the queen out of the foul brood colony and put it directly into the healthy colony. They accepted her at once—I didn't have to cage her—and no foul brood ever developed from that operation, so that I am tolerably well satisfied that the danger of getting foul brood by means of a new queen is extremely slim.

Mr. Laws—I would like to ask Mr. France why he wishes to feed sugar syrup to the queen and bees in the cage for forty-eight hours before he introduces them.

Mr. France—I would rather you would cut that off and not feed the queen and bees, and isolate her from those bees. It is simply to make her first consume what honey she has within her honey-sac, and then give her a good feeding, the same as with farm stock.

Dr. Bohrer—The disease is no part of her system, but simply what she has been eating?

Mr. France—That is all.

Dr. Bohrer—Do you consider salicylic acid as a germicide a valuable thing to feed with the syrup?

Mr. France—I don't know but it would be good, but I have not known any bad results when we didn't use it.

Mr. Darby—I would like to ask if you don't first introduce the queen to a new escort before you do the feeding?

Mr. France—Let her run into a cage alone first without those bees, to make sure she is partially starved, to get rid of that honey, then give her escorts and some feed.

Mr. Hart—I would like to ask if it is not a good idea to feed the queen when you are treating for foul brood at times when the bees are not doing much?

Mr. France—Yes, a most excellent time. You will accomplish two things at once. Only there is one danger. If you take away the brood it makes them restless and uneasy, unless there is a good deal of feeding done. If there is a little swarming impulse it makes quite a difference. It is difficult to treat foul brood unless there is a natural honey-flow coming in.

Mr. Hart—I would like to ask again if it would not be a better idea not to extract the honey from these two combs, only at a time when the bees were doing well in the field?

Mr. Francis—Does the queen-bee ever deposit any honey in the cells? If not, what difference will it make what kind of honey she has, whether foul brood or not?

Mr. France—I don't think she does, but sometimes she has an overload, and she may feed it to some other bee that would. There is a little risk there. Keep on the cautious side.

#### REPORT ON NATIONAL HONEY EXCHANGE.

Mr. France presented the report on the National Honey Exchange of America.

Mr. Brown—With regard to this matter I would like to say that, as you see, this is the first step towards our National Commercial Organization, and, as was suggested in the paper read, it is to be a market for all of our product; it is hoped to be the place where those who now consume honey and are seeking the produce from you will come to this organization to buy. It is hoped that it will be so organized with such men at the head of it that every producer will have full and complete confidence in their management of it, and will willingly and freely trust and consign their goods thereto, knowing that they will get exact and just weight and exact and just returns, knowing too that if there be but one organization in the field which will manage and control and handle all this product, it will forever do away with the competition that now exists between localities, which has a tendency as all other competition does, to bear down the prices. Therefore, we expect through this organization to be able to advance to the producer the price of his product, and not necessarily increase it to the consumer. I don't believe this matter will affect the price to the consumer one particle. It will simply save to ourselves and to those who sell and produce the honey that which now goes into the pockets of people that are making themselves wealthy out of what we produce. For the inducement of those who wish to buy stock, the stock is placed at \$25 a share; and we expect, of course, to derive some benefit to be induced to buy stock, outside of this matter of boosting the price of our goods. I can only outline something we are doing in California, having this last winter completed an organization in central California. This organization charges a commission for selling honey—it does not make any difference what that might be—we will say it is five percent—there are our resources and the dividends; after the expenses of the Association have been paid, whatever is accumulated will be dividends. We place our honey upon the market through this channel because we are members and we pay five percent for marketing our own goods through this channel. It takes two percent of the five percent to meet our expenses, then there will be repaid a dividend of three percent back to ourselves on our stock. It can be proportioned to the amount of goods contributed as is done with us in California. Then we do not only get back the dividend or rebate on the goods we contribute but also on the entire gain of the Association. We had put in our

charter a clause giving us an opportunity to manufacture and deal in supplies. That is simply put in there in case, after years of experience and growth, we grow into something of that kind. But the first thing we want to direct our attention to is the market.

Mr. Krebs moved, seconded by Mr. Laws, that the report be accepted.

Mr. Abbott—I rise to a point of order. This Association is discussing and passing action on the business of another Association, which is a stock company, and is to be entirely different from this Association, and it seems to me a strange anomaly that there should be organized inside of this Association another financial Association whose avowed purpose is to crush the business of at least one-fifth of this Association, for one-fifth of the people here are supply dealers. I confess that this is the strangest anomaly that I have ever known to exist in the form of legislation, that, I, as a member of the National Association, a supply dealer, should sit here and help make a Society whose avowed purpose is to crush out my business. I protest.

Prof. Benton—I supposed this was an Association of honey-producers to protect honey-producers' interests, and not an Association of supply dealers.

Mr. Abbott—I have no personal reference to the matter. I believe in the courtesy of this Association being extended to these people to organize this Association, but I claim we, as members of this Association, have nothing to say about how they shall conduct their business. I have no objection to what Mr. Brown has said, or to the presentation of the matter or the organization of those here, but now that it has become a permanent organization I claim it should hold its meetings separate and apart from us.

Mr. Whitcomb—While I have no interest in the sale of honey or supplies, or anything of that kind, yet I do consider when this Association goes into anything of the kind, or gives any countenance to it, it is treading on very dangerous ground indeed. If the people of California or Colorado wish to organize such an Association I have no objection whatever, but I object to dragging the people of Nebraska or Ohio or Missouri into an organization in which they have no interest.

Dr. Bohrer—I do believe we have a right to recommend such an organization as will successfully combat the combines and trusts and such persons as wish to take stock have a right to do so.

Mr. Krebs—I do not see any need of all this apparent opposition. This organization is intended to benefit the producer of honey and not to run in opposition to any class or clique of people. It is simply to get the benefit of the sale of honey at a reasonably good price without having to hunt all over the world to get our prices; it is just simply to regulate prices.

Mr. DeLong—I really think it is the Association's business to procure a market for their product. If we spend the best efforts of our lives in producing a product and then put a great portion of that into the hands of untrustworthy men to handle and dispose of to the consumer, I think we have lost one of the important points of our mission. We seem to be in the condition that we can produce the honey but when we have produced it another class of people comes in that are not in the business at all, and they say, you shall not market your honey. I say we do market it. I say we agree on this exchange and we see the destiny of our product.

Prof. Benton—I think there is a good deal of misapprehension here. For my own part I would not think of going into any such organization as is spoken of if it were designed to crush the supply dealers, because they are a useful set of people, and the supplies of these people must necessarily in the beginning come from these very supply dealers. They are not to be crushed, they are to be encouraged; they can form a part of it as well, and I see no antagonism. I do not see that the National Bee-Keepers' Association is the promoter, or sponsor, or anything of that sort, for the honey-producers' association; this is simply a convenient place to bring forward such an idea.

Mr. Abbott—I agree fully with Mr. Benton. We have got on common ground. I am not offering any objection. In fact I would like to amend the motion that we heartily concur in the movement, and will offer no opposition to it in any way, but my contention is that this is a separate body and we ought not to take the time of this body. I leave it to Mr. Brown himself if I am not right.

Mr. Taylor called for the re-reading of the report which was complied with by Mr. France.

Mr. Taylor moved, seconded by Mr. Abbott, that the report be laid on the table.

The President put the motion, which on a vote having been taken was declared lost.

The President then put the motion to adopt the report which on a vote having been taken was declared carried.

Mr. York then read a paper written by Mr. Poppleton, of Florida, on the subject of "Bee-Paralysis," as follows:

### BEE-PARALYSIS.

Early one season over 20 years ago, while keeping bees in northern Iowa, I noticed that many of my colonies seemed strangely affected, and in most cases seriously so. I examined leading text-books, as well as our periodicals, but could find no reference whatever to anything like it. A sample of the affected bees was sent to Prof. Cook, but it was all new to him. About this time inquiries commenced coming to our editors from various and widely separated localities about this same trouble. It came to be known as the "Trembling Disease," "Nameless Disease," afterwards as "Bee-Paralysis," which is more appropriate, and will probably be its permanent name.

The disease seems to be widespread, not only found in nearly all sections of our own country, but also in foreign lands. There is quite a general belief that it is confined to the South, but this is a mistake, as, with one exception, the most serious loss I have had from it was in northern Iowa. The fact that it is almost impossible to winter a diseased colony in the northern part of our country, prevents its becoming very serious there, and for that reason only it is more common in the South.

Is the disease contagious? If so, how, and in what way is it communicated from one bee to another, and from colony to colony, and, if not, what causes the disease, is one of the important problems yet to be solved. This problem must be solved, and correctly so, before we can fully control the disease. I am not at all sure I am right, but think the disease can be, and is, communicated from diseased bees to well ones. Careful experiments seem to prove that it is not passed along by means of combs, honey or brood, and I now transfer them from sick to well colonies without bad results, being careful not to give any sick, well or dead bees from an infected colony to a well one.

Whether queens can and do transmit the disease to their offspring is one of the points not yet determined, and is, in my opinion, a most important one. Giving a diseased colony a new queen has not with me been a success, yet many facts which have been carefully observed lead one to the theory that queens are largely responsible for the spread of the disease, and it seems to me much more prevalent in certain strains or families of bees. One fall, some years ago, I purchased quite a lot of young queens from one of our best breeders. The following season, nearly all of the diseased colonies in my apiary were those to which one of these queens had been given, over half of them being affected. The breeder whose honesty and truthfulness cannot be questioned tells me that so far as he knew there was none of the disease in his apiary at the time he reared those queens. Another time I obtained two or three queens from one of the noted breeders in this country. There seemed to be no trace of the disease about them or their colonies at first, but part of them, and nearly every colony of their royal daughters were diseased the following season. I had to purge the apiary of every trace of this strain. Same also occurred with another lot of purchased queens, while the descendants of other purchased queens have been free from the malady.

This question of the transmission of the disease through queens, and the fact that when once diseased the colony will continue so after a change of queens, looks as though queens and contagion both aid in spreading the disease, and opens up a wide field for theory and experiments.

The sign of disease is readily seen and recognized. Should any quantity of dead bees be seen outside the entrance to a hive, a few struggling and dying bees will usually be seen among them. If not too badly diseased, well bees will be seen on the entrance-board, tugging and hauling at sick ones, trying to drag them out of the hive. At first glance one may think that robber-bees are being fought, but a little closer observation will show the plain difference between driving off robbers and dragging out sick ones that don't seem to want to go. On taking covers off of hives the sick bees will try to come to the light, and after a little time can be seen crawling on the top of frames. Their motions are slow and laborious as though weak and partly paralyzed. They cannot take wing, but cling tightly by their feet to anything they are on. This tight clinging



by their feet is the surest sign of the disease and very readily noticed.

The disease is exceedingly erratic in its course, sometimes commencing suddenly, sometimes slowly. It may destroy the colony in a few weeks or it may linger an entire season, or it may recover suddenly, with or without some seeming cause for doing so. This last trait has caused many who have seen only one or a few cases to conclude that they have found a sure cure because a colony happened to recover soon after something had been done. This erratic character of the disease has not only led many to wrong conclusions, but makes it much more difficult to reach right ones. Observing scores or even hundreds of cases is necessary before coming to any definite conclusions at all, and we know too little of the disease yet to think we know very much about it at the best. Let us hope that some competent scientist can give us more definite knowledge than we now have.

Several methods of cure have been suggested, nearly all of which I have tried. None have given satisfaction except the use of sulphur. A single application of this has always affected a cure, except in two instances, when a second application was required. The method of treatment was to go to the colony to be treated some time during the day, and remove all the combs containing any eggs or unsealed brood, giving them temporarily to other colonies. In the evening as soon as all the bees are in from the fields, sprinkle all the bees, combs and inside of the hive very lightly with powdered sulphur, trying to get a little on all of the bees. I never measured the amount of sulphur used, but think about a tablespoonful to a small colony. Usually the bees will die off quite rapidly for a few days after treatment, then cease doing so quite suddenly. The original combs of brood taken away, or others, should be returned the day following treatment. Reason for having this brood out of the hive during treatment is because sulphur kills all unsealed brood that it touches. It is very important to observe this point in actual work.

While this treatment has always succeeded with me, yet I prefer an entirely different method. That is, to make a new nucleus with young queen, building this nucleus up into a strong colony by giving it the brood from the diseased colony, a comb or two at a time, as rapidly as it can use them to advantage. A cured colony is always very weak, so much so as to be of little or no value during the season of treatment. A nucleus built up by combs or brood from a sick colony will be in fully as good condition at the close of the season as would be a cured colony, with the added advantage of having a young queen with no known taint of the disease. While a cured colony is not apt to be again diseased, yet my experience makes me very shy about using the queens of such colonies for breeding purposes; and the best way of being safe from danger of that, is, not to keep such queens.

I hear reports of two other diseases known as "bee-paralysis" in the localities where they exist—one of them from California, the other from Wisconsin. Whether these are really types of that disease or are new diseases, is more than I know. The existence of these in our country emphasizes very strongly the need of thorough examination of the different types by competent scientists. I would suggest that our Association formally request the United States Department of Agriculture to take up this work and make a thorough investigation of these diseases.

O. O. POPPLETON.

Dr. Miller moved, seconded by Mr. Laws, that this Association request the Department of Agriculture to make the investigations suggested by Mr. Poppleton.

The President put the motion which on a vote having been taken was declared carried.

Mr. Laws—Is this a prevalent disease in our country now?

Mr. Andrews—We very seldom have a year but we will have from one to five colonies diseased. It never got very extensive with us in southern California.

Mr. Francis—In Colorado we have a great deal of this paralysis. It seems to affect the bees before the honey-flow, and when the honey begins to come in it disappears. But this season seems to be an exception. Nearly all my colonies show it. We have lost quarts and quarts of bees.

As a practical answer to the question as to the commonness of the disease Dr. Miller suggests that the members who are familiar with it arise, and at his response some twenty-five or more stood up.

Mr. Taylor—I have had a little trouble but exceedingly little. I have only had one or two cases. In the spring I had a colony troubled with disease and I removed the queen

and gave the colony a new queen. When I removed the queen I put her in a cage and kept her for a few days till some one came along and wanted a queen. I said, "I have no queens to sell; I haven't any more than I want, but I have a queen here that I have just removed because the colony was diseased. If you want the queen take her along and try her." In the course of three or four weeks my bees were all free of the disease and my friend came back and told me his colony to which he had introduced the queen had contracted the disease; showing that the queen had something to do with the disease.

Dr. Bohrer—How long after the introduction did they contract it?

Mr. Taylor—Four or five weeks.

Prof. Benton—My own experience had been very limited, but it has been reported to the Department of Agriculture from a good many States, principally Texas, Colorado, California, Florida and Pennsylvania. I recall those now, and there are others. It was particularly virulent in Texas, Colorado and California.

Dr. Miller—There is one question that comes up with regard to this which possibly might throw a little light on the treatment of the diseases. In general the disease is not bad. My bees have had the disease many and many a time, and I do not mind it at all; it doesn't amount to anything. Down South it is a very serious thing. Why is it so much worse in the South than in the North?

Mr. Poppleton—I had the disease fully as malignant in the North—in northern Iowa—as I ever had it in the South. The first winter it came the old bees continued dying all the time and continued for several months with no new brood being reared. Of course, with the old dying all winter, before the spring comes, there are no bees, and the disease cannot be distributed further. I know of no other reason why it has been so. The only difference in the South is with the weather; there it continues year in and year out and there is no interval of brood-rearing.

Mr. France—I found another trouble that so closely resembled bee-paralysis that some of us may get conflicting ideas. I found it in Wisconsin, and by reports I learned that there is the same thing in Missouri, Illinois and Iowa, and straight on through to New York, and almost at identically the same time of the year. The characteristic points of it are, first, we see a colony that is unusually strong, and in three days' time it has depopulated from half to two-thirds of all the bees, both young and old bees leaving home. On close examination out in the grass from two to six and sometimes twenty feet away we find here and there a bee running as if something was after it. It comes to a blade of grass and tries to climb it and makes an effort to fly and falls down again. With paralysis there is more of a tendency as it travels to travel slower, and more with a shaky motion to the body. These do not seem to have time to shake. The seriousness of it is, it simply depopulates the whole hive, so much so that in an apiary a little way north of me there was at least a half or more of all the bees, in three days' time, gone, just at the opening of the honey-flow. It recovers itself in a few days, as fast as the brood can hatch out, and it re-appears again right in the basswood flow. After finding it in some of those northern yards I returned to my own bees confident they were all right, but I found it very much all through, and I kept on going, and going, and seemingly there was no limit to it in our State. It was the same thing. Before I got around the circuit it was all over with. The first yard I went to I understood Mr. Benton sent a man out there to investigate, but by the time word could get to him and the man was sent out there, it had quit. But we will be on the alert and watch for it. To say what caused it I could not say anything in particular. I took a bee and put it under a glass, and I could not see any parasitic trouble, and I am at a loss to know what to call it, for I hardly feel like calling it paralysis.

Mr. Davis—I did not rise when asked because my bees didn't have the trouble just as you describe it, but Mr. France has described the trouble that I find in my apiaries in southern Iowa. I didn't know what caused it.

Prof. Benton—There is one point perhaps that Mr. France has failed to mention. That this case in Wisconsin could not be ascribed at all to spraying. As Mr. Rankin was in western Michigan, I requested him before coming to Washington to go across to Wisconsin to see what he could there. He arrived a little late; the disease seems to disappear so suddenly. He investigated the surroundings, and was confident it was not due to spraying. It was not foul brood; it was not ordinary paralysis, but there were such peculiar conditions we should have to conclude it was some form

of paralysis. There is where we have to take it up another year and make a thorough investigation to see the cause of it. He could only make one single suggestion, and that is a mere idea that entered his head, that possibly between pear-blight and this disease there is some connection, because pear-blight was abundant about this apiary that was so largely affected. If any one is situated to make observations of that I shall be glad to report on it another year.

Mr. Hart—I would say our fruit-men do their spraying in February and the early part of March, and this paralysis comes on between August 30 and September 10. We have what has been spoken of by Mr. France, and also in addition to that when the bees die they seem to be full of sour watery stuff.

A Member—I have had some trouble in Colorado, and Prof. Benton's suggestion that it might be pear-blight in connection with paralysis reminds me that the worst trouble I had was with bees located in a pear orchard which was badly affected with blight. I hadn't thought of connecting the two diseases, but perhaps that had something to do with it. It occurs with me usually about the first of May and continues until October. Mr. France's description of the disease is identical with my experience. I have eradicated it in some few cases by changing the queens, but I don't think it is a reliable remedy.

Mr. France—In reply to Mr. Benton, I also looked after the spraying conditions north of me. Now in my own locality I had four pear-trees and that is all I know of, within several miles of my apiary, and there were none near my out-apiaries, and they were fully as bad as the others. About twenty miles almost directly west of this yard in Wisconsin where Mr. Rankin went, it was fully as bad, and there are no pear-trees in that vicinity. I question if we dare attribute it to that. I don't believe spraying has anything to do with it.

Mr. Root—Mr. France describes exactly what I have seen in various parts of the country, and what I have seen in our own locality, but usually after the honey-flow. I have seen one other peculiar symptom accompanied with it, that was that the bees would be tugging at their abdomens with their hind legs, and after struggling for some time they would separate the abdomen from the rest of the body, and they would be running around in that way. I have seen them come down in the air, head over heels, in that way, and apparently had made the separation in the air. I have seen the separation take place on the sidewalk, and I have watched them actually dismember themselves, apparently as if in a good deal of pain. I sent a few specimens to Mr. Benton, and if I remember rightly, Prof. Wiley found a slight trace of poison. Whether they had gathered anything that poisoned them or not I cannot say.

Mr. Poppleton—Mr. Laws was asking about the prevalence of the disease. You cannot pick up a single volume of any of our bee-papers but what you will find reference to it. I get letters from different States in the Union asking about it. Mr. Ford lost his entire apiary, and another gentleman down in Florida almost went out of business. It is scattered universally. The form I speak of is exactly identical with what I had in Iowa. I think Mr. Benton tells me they call it the "May disease" in Europe, because it is more prevalent then. It is spoken of in the Australian journals. It cost me 10,000 pounds of honey one year; it costs me a little something every year; it is costing now a great deal. It is exceedingly erratic in its operations. You cannot tell anything about it; it seems to respond to one kind of thing at one time and to another at some other time. My own impression is that one of the worst troubles is through the queen, and I have entirely refrained from ordering a queen from outside of my apiaries, because of the danger of bringing it in. Not with the queens themselves, but their progeny. The more experience we have with it the more we know we don't know about it.

Mr. Krebs—I have talked with a very prominent bee-keeper of Texas on the subject of paralysis, and he told me he could not figure it out in any sense, and all he did for it was simply to wait until the honey-flow commenced. It is a spring disease, and when the honey-flow comes it passes off. It will come back the next spring in some cases and in others it does not.

H. Stewart—There are many here vitally interested in the subject of foul brood, and in a private interview with Mr. C. Stewart, of New York, he has outlined a treatment that has not been touched upon at all and if we ask him he would take the floor and describe his treatment. It is a treatment to be carried on this fall.

Mr. Whitcomb—Among swine-breeders there are about twenty or thirty different kinds of diseases which we at-

tribute to cholera. Among cattle we know they go out and get something that kills them. We attribute all these diseases that bees are heir to, to bee-paralysis which we do not attribute to foul brood. Now we need to understand ourselves and define what it is. I have had two cases. In the first case I superseded the queen, and she built up the finest colony I ever saw. The next had shown symptoms of cobaltic poison, and I went over to a friend and found he had left some honey in the cellar, and the flies were there and he had given them fly-poison. Sometimes they bring in poison from the fields. We don't know anything about it.

Mr. Poppleton—The idea that it comes on just before the honey harvest, and goes away just as soon as it is over, is only partly true. There is always more of it just before the honey harvest; when the honey-flow fairly commences it lessens, but some will carry it right straight through the honey harvest. There is not any one rule to follow at all. There is one disease that is known universally as bee-paralysis.

C. Stewart—Perhaps in giving that treatment I ought to say sometimes the question is brought up about changing the hives. We treat those bees right in the same hive, providing you don't leave any comb or honey there. Some of our people have gathered up the refuse from a hive badly affected with black brood and sent it to our bacteriologist at Cornell University, and he was unable to obtain a culture from it, showing there were no living germs after it reached him. With reference to the treatment I was asked to give, it is, at the end of the honey season when all brood-rearing has ceased—depending on where you are located—when there is no brood in the hive you can take all the combs from the diseased hive and give them a clean set of combs from some healthy hive, and when the spring comes you will find that the disease has disappeared, there being no brood there to continue the disease, and there being no honey except what little they take in their honey-sacs with them, and that being consumed before the brood is reared again you will find the colony in nice shape.

Mr. Poppleton—The most important point in my entire paper not one has touched on, and that is the method of curing bee-paralysis by transferring the brood and building up another healthy colony. I think that will be far more satisfactory. It has the advantage of ridding the apiary from all signs of the disease.

Pres. Harris—It is almost utterly impossible for me at this time to name a committee of two from each State interested in bee-culture, but through the bee-papers, it may be well at no distant date to take this up and correspond with both the president, and the others and make suggestions and I will then forward the committee to the Manager and he will notify these people who have been appointed, so that they will be ready to do their duty.

Mr. Haines—I would like to have some of the experts explain the treatment of pickled brood.

C. Stewart—I am not so well posted on that as I am on black brood. We have a disease near Syracuse that differs a little from the old-time pickled brood that was pickled in its own juice. This seems to have dried down, and when the proper time comes for the larvæ to be capped over it simply straightens out in the cell and the head turns black, and to distinguish it we call it "neglected brood," because we find a great deal of it in the time of a drouth, when honey is coming in very slowly. We find apiaries badly depleted to a great extent; that is the most trouble we have had with pickled brood in New York State.

Mr. Davis—I think pickled brood troubles only black-German bees. I have been troubled somewhat with it. I don't think it is serious at all. It is like the bee-moth. By introducing the Italian bees it will disappear almost entirely.

Mr. Haines—I have to differ from the gentleman on that. I have as good an Italian queen as you would wish to see; there are two colonies that swarmed from it last year and they are both affected with it. Mr. France examined some yesterday from St. Clair County, and pronounced it pickled brood, and he says it will dwindle down until there is no brood at all. That is my experience. I don't say we have much foul brood, but we are just as bad off with pickled brood.

No. 159—I was badly scared over this business this year, myself. I found it in one of my apiaries and in very bad shape; found it had depleted two-thirds of the combs in the hive; the colony would be affected all over and in perhaps a very bad shape, two-thirds of it would be entirely destroyed. I wrote to the President of our National Association and he told me that they needed protection and feed. I went to



work and contracted the entrance to my hives. I had them on the Miller bottom-board and the entrance wide open. I contracted the entrance and fed liberally, and the disease has entirely disappeared. I also went to an apiary where there were Italian bees, and I narrowed the entrance to those hives, and shut them down where they were warm, and fed them with sugar syrup, and the disease has entirely disappeared.

No. 152—In my experience with this pickled brood I believe it to be black brood in its incipency. From the causes given by most of the experts on pickled brood they tell us that it becomes so by being neglected. I found it in Colorado with a little honey, and I found it in medium colonies with a little honey, and in those that have plenty of honey; I found it in the honey-flow and I found it in the very strongest of colonies, exactly what Mr. France showed me yesterday, and said it was pickled brood, and he gave me a very severe look when I told him it was black brood. I followed a case down from just one or two cells of so-called pickled brood in the apiary till you could see it develop into the most malignant case of black brood in all stages, from very few cells to others entirely dead from disease. I think the locality must have something to do with it.

J. C. Stewart—This gentleman stated that his bees recovered after they began to feed. I would like him to state if the bees had plenty of honey in the hive at the same time?

No. 159—Yes, but it was sealed honey.

J. C. Stewart—I believe bees can uncap honey about as well as anybody else. I had thirty cases of this pickled brood at one time in New York. I had it once last year and again this year; about five cases this year; and at no time have my bees been short of feed, and I have not fed anything to help them get rid of the disease, nor did I kill a single queen, and for three years previous to that I fought foul brood, hammer and tongs, night and day, in fifty or sixty colonies. I know it has no connection with foul brood whatever. I know these thirty colonies have had pickled brood, and they got well and I never lifted a finger to help them in any way.

C. Stewart—I don't think you will find that pickled brood will ever develop into black brood or foul brood. The conditions that prevail may be as favorable to the development of black brood as of pickled brood.

Mr. Rhees—I have had some experience with pickled brood. Some four or five years ago I got quite alarmed. Invariably they got low during the season. I came to the conclusion that pickled brood was simply the death of the larvæ. I understand it is caused by some life that grows in the matter that is decaying. Nearly all diseases are caused by some kind of life. I believe when the conditions are favorable to pickled brood they have it. When feed is poor or the weather cold, or the bees cannot get water, or something that is needed to feed this young larvæ, it dies. When conditions are favorable in the hive the percentage of deaths is small, and the bees pull them out before we ever see them at all. I believe the larvæ die in our colonies; if the larvæ are removed immediately we do not see any pickled brood. If they die in large quantities we commence to be alarmed at the situation. In some instances where the vitality of the queen is very low and a colony gets to the hives, and the brood is already started, the bees get behind and they cannot catch up, and the disease will finally kill the colony in some instances. I do not believe pickled brood is contagious in the same sense as foul brood. The only way we can cure it is by keeping the vitality above it, and the conditions of the bees good.

Pres. Harris—As your presiding officer I do not know that in my life I have ever felt prouder to preside over a deliberative body of ladies and gentlemen than I have this one. It has been one of the most harmonious meetings I have experienced in all walks through life. We are all stars in the universe, some shine brighter than others. We may not all walk on paths of flowers, some of us have thorns in those paths and walks in life, but by our goodness, and by casting aside our selfishness, we live to better the conditions of one another. I should say to you here that the saddest time I have is when I say good-bye to those I have been associated with, in a meeting of this kind, and when today I say farewell to you, it is not a farewell forever, because I expect to meet many of you again. But before next year many of those who are here—I hope not—will go over to their last Home on the other side of the river, and I hope before you leave you will have a hearty hand-shake, you will come in touch with one another and get down to that point in life where good Christian people get—while I may not be one of them, I believe in it—that you may assemble together and do unto others as you would have them do unto you. That is the proper thing in life. Do not, when you go away from here, fix up your little slates for the next officers; look at this from

a sincere standpoint; do your duty. If anyone writes you a circular, use your own judgment, and then in the future you will have an organization that will not go on in a selfish channel for one or two cliques that may be there, but for the whole interest, for the whole bee-fraternity of the United States. Always bear this in mind, and you will have done a good thing in life. I want to say another word in conclusion. Do not forget our bee-papers, that you may get proper education. They do much to upbuild our industry.

Mr. Taylor—If there is no other business I move the convention adjourn *sine die*.

The President put the motion, which on a vote having been taken was declared carried, and the convention adjourned at 12:30 o'clock p. m., Sept. 30.



## Our Sister Bee-Keepers

Conducted by EMMA M. WILSON, Marengo, Ill.

### An Elder Sister's Experience—Robber-Cloth.

I am 70 years old and my sister is 60. When I started with the bees I expected to interest the younger members of the family, but have failed in that. Three of them are away from home, and the one that is left has more than enough to do, for in the summer months, when we have to work the most with the bees, we have tourists with us, and then in the hot season my strength seems to fail me. Last season I was so slow in my work with the bees that three of the children of our visitors got stung.

Only one colony came through the winter in good condition, but it did splendidly. It built up fast, and was very strong, being four stories high. I got more honey from that colony than I had taken from the 5 before. They were so orderly, so well-behaved, so intent on their own business, so watchful for enemies.

But how was I to get to the bottom of the "castle" for queen-cells? I meant to divide it into 3 and give each a queen-cell, which would have been an easy enough thing to do if I had had an assistant, for I could hardly lift one of those frames full of honey and bees. I took away the full combs of honey, and the frames containing brood I put into a new hive. But when I got to the second story they just seemed to say, "Hands off! you shall go no further". So I shut them up with full supers of empty combs, and without a single queen-cell; and, what was worse still, when I went to take away the full supers the bees had taken possession, and were transferring the honey into their hive. I had been far too slow, but they had not. They were masters of the field, and knew it, too. When I objected and brushed them off the combs, they were very angry. However, they took care of the new colony and sent a nice swarm into it, making it almost as strong as itself.

I have been too "careful and troubled" like Martha, being seldom free from "bees in my bonnet". I am trying now to free myself from this. I may keep one or two colonies on the let-alone plan until I see if my strength comes back. In the meantime I must rid myself of carking care and "be careful for nothing".

A SISTER.

Muskoka, Ont., Dec. 10.

After the interesting experience you have had it is greatly to be hoped that returning strength may allow you to keep in the ranks. Indeed, when the true virus of bee-fever is in the veins one is not likely ever to be freed from it. Are you sure that interest in the bees is not the very thing to preserve and increase your strength? It's the other cares, the indoor cares, that are the carking ones, and the care of the bees helps one to let go of the others. At 70 quite a number are still active in the business, some of them producing their thousands of pounds of honey.

When taking away those full combs of honey it would have been an excellent thing to have used a robber-cloth to throw over the combs, thus preventing the bees from getting started to rob. When once they get thoroughly started robbing it makes them furious, and they act like so many little demons, demoralizing the whole apiary. The best way is to watch out that they do not get the least start, and a robber-cloth handy to throw over any exposed honey is a big help in that direction.

Jan. 26, 1905.

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Dear Sir:—I have tried almost everything in the smoker line; 3 in the last 3 years. In short I want any more smokers your new style is good enough for me. I thank the editor of Review for what he said of it. Those remarks induced me to get mine. FRED FODNER.

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## Reports and Experiences

### Enthusiastic About Bees.

I am only a "small potato", but I am getting mighty enthusiastic about bees. I lost all I had last winter, but I bought 8 more colonies and increased to 39 strong colonies, which I have in the cellar where they seem quite comfortable.

The cellar is one built specially for them, and, of course, to my mind it is just right. I studied Miller, Bingham, Doolittle, Root, and others, and then made one to suit my surroundings and myself.

I was very sorry not to be able to meet with the Chicago-Northwestern Association when they held their annual convention, as I had hoped to do, and see with my own eyes, and shake hands with and talk to some of the noted bee-keepers of whom I have read with so much interest. But with us farmers business is always pressing at that time (or any other), so I shall be content for another year to read what they write in the bee-papers.

Berrien Co., Mich., Dec. 6 E. L. HALL.

### A Fortunate Beginner—Successful Season with the Bees.

Last spring a man bought 2 colonies of bees from me, and increased to 6, securing 600 pounds of honey. How's that for a beginner? I have induced him to subscribe for the "Old Reliable". He has the bee-fever all right, and I think will be a good bee-keeper in a short time.

I had 13 colonies spring count, increased to 19, secured about 200 pounds of comb honey and 2000 pounds of extracted. The best colony stored 275 pounds. This is a good strain of bees, and I expect to breed from them in the spring.

The bees are wintering well so far. They had a good flight yesterday.

A. J. FREEMAN.

Neosho Co., Kans., Dec. 31.

### Cellar-Wintering of Bees.

Last spring I had 80 colonies left out of 87 which I put into winter quarters in the fall. I sold 40 of them and built up to 45 colonies,

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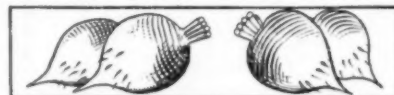
who get intelligent answers to any questions on grafting, planting, spraying, insect pests, etc. Many of them are always answered completely by Dr. J. C. Whitten, the prominent fruit authority, Horticulturist at the Missouri Experiment Station. Every live fruit-grower and farmer should receive every number of The Fruit-Grower. You get dollars worth of benefit for 50c a year. Send 25c and names of 10 persons interested in fruit-growing for a year's trial. Eastern Edition for States east of Ohio.

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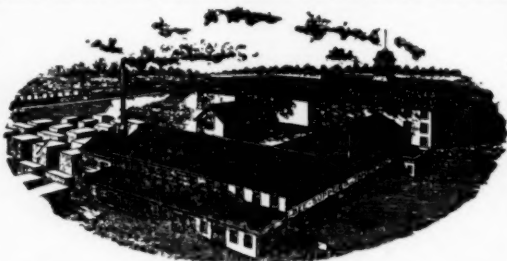
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- 1,000 splendid Onions,
- 1,000 rare, luscious Radishes,
- 1,000 gloriously brilliant Flowers,

ALL FOR BUT 16c POSTAGE,

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**GUS DITTMER, Augusta, Wis.**

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but secured only 832 pounds of comb honey. The past season was not nearly so good as that of 1903, as in that year I had 37 colonies in the spring, increased to 87 colonies, and secured 4210- $\frac{3}{4}$  pounds of comb honey.

I put the bees into the cellar Nov. 25 in good condition. Last winter I left 15 colonies out-of-doors as I had not room for them in the cellar. I lost 1 out of the 15, 1 in the cellar, and 5 from spring dwindling. I use the 10-frame dovetailed hives.

My plan in wintering is to nail the bottoms on the hives, leaving a  $\frac{3}{4}$  entrance. I keep the dead bees away from the entrance with a wire hook, and the cellar is as dry as a powder-house. We have the bees, vegetables, etc., all in the same cellar, and I keep the thermometer as near to 45 degrees as I can.

It has been very dry here for two months, but we had 5- $\frac{1}{4}$  inches of snow on the 11th, which I think will be a help to white clover.

I live in a town of 800 inhabitants. I have my hives arranged from 6 to 8 feet apart in straight rows, all on stands 4 inches high, with 10-inch alighting-boards. I do not allow any weeds or grass to grow 2 inches high.

E. B. PRITCHETT.

Warren Co., Iowa, Dec. 15.

### The Problem of Wintering Bees.

Under this heading the American Bee Journal publishes an article in the issue of Dec. 22. From the experience I have gained during the last few years I can only say that the writer deserves great credit for the practical hints he gives to bee-keepers concerning ventilation. His advice can not be neglected by bee-keepers, without loss on their part. The bees must be kept warm, but they must also have plenty of fresh air, and how to combine these two is to solve a problem that is very important, especially to young bee-keepers. Before I knew how to prepare bees for winter

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Macaroni Wheat, Rust Proof, 80 bu.

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Please mention Bee Journal when writing

I had great losses, therefore I will explain how I winter them on their summer stands.

In the fall when cooler weather comes—after the first frost—I select a day which is not windy, for bees do not like to have their hives opened on a cool and windy day. I lift the cover slightly, and blow in sufficient smoke to make the bees leave the top-bars. Then I place over the top-bars a wire screen large enough to cover them well. After doing this I place an empty box on top of the hive filled with excelsior (very fine shavings) about 6 inches deep, or enough to shut off the cold air. The boxes I use for this purpose are the same as those I use for hiving bees, and are about 9 inches high. The best cover to use on the box is board strips nailed together, leaving between each strip about  $\frac{1}{4}$ -inch space, through which dampness which is caused by the sweat of the bees, may escape. Then the roof is placed over all. The box is placed on the hive and fastened on 4 sides with small staples. To drive them in with a hammer is not advisable. They can be pressed in when the holes are pierced with an awl. The joints between the top-bars and the hive can be daubed with a little mortar if necessary.

A hive prepared in this manner needs only a small entrance; if the temperature goes below zero,  $1\frac{1}{2} \times \frac{3}{4}$  will be about the size. Under certain conditions more space is advisable. This will ventilate the hive well, and dispel all moisture, and in the spring the bees will be found in a healthy condition with no moldy combs, which I found so often before using this method. When bees are prepared for winter in this way the excelsior in the box must remain dry, and if it gets wet from exhalations it indicates that the flight-hole should be enlarged.

BRO. ALPHONSE VEITH.

Spencer Co., Ind.

#### Getting Unfinished Sections Filled.

When I have unfinished sections at the close of the honey season I put them on good, strong colonies and feed extracted honey, and they fill them up. It pays to feed honey rather than sugar.

DR. J. ARCHER.

Santa Barbara Co., Calif., Dec. 14.

#### Laboring Under Difficulties.

I put 8 colonies of bees into winter quarters in 1903, but they all died before spring. I then bought a colony, but it was very weak. By August it had built up pretty strong and swarmed. I fed it about a pint of syrup a day until fall. One large swarm came to me, and I bought a few colonies. I also had another old colony in the spring which was strong, but did not swarm until August. I fed it and kept it at work all the time. When the first super was about half full I put another one under it, and so on, and in the fall I had nearly 100 sections filled.

I now have 7 colonies in good condition for winter.

A. S. BEILER.

Lancaster Co., Pa., Dec. 16.

#### De Luxe Comb Honey.

On page 19 of Gleanings in Bee Culture for this year, Mr. Titoff has given us something of more than usual importance. I, for one, believe there is altogether too much labor and expense attached to the production of comb honey in small sections. Improvement in methods ought to be in the direction of simplicity and economy, but the tendency has been too much the other way.

Mr. Titoff makes a very strong point when he says that much more honey will be produced in a given time by the use of shallow frames than with sections. I know that the work of producing fancy honey in sections is fascinating. It is nice work when one has only a few colonies, but only a few of the larger bee-keepers in the country will bother with sections at all.

I can see one point that was not mentioned directly in the article referred to. The boxes could be used over and over again for honey. Sections are never used the second time, and very few shipping-cases are saved for a second shipment. I say, let us make a fair trial of

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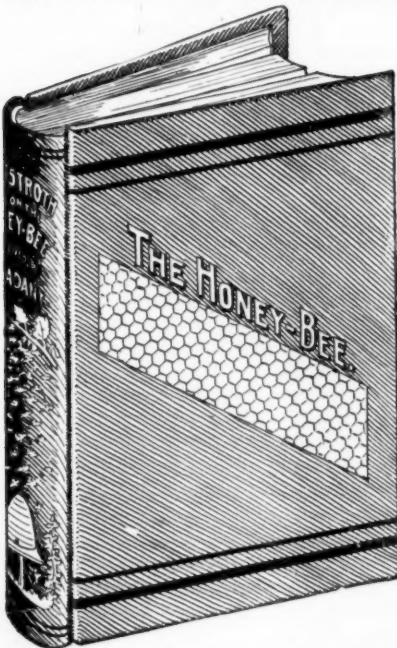
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## Langstroth on the \*\*\* Honey-Bee

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This is one of the standard books on bee-culture, and ought to be in the library of every bee-keeper. It is bound substantially in cloth, and contains over 500 pages, being revised by those large, practical bee-keepers, so well-known to all the readers of the Ameri-



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the tin boxes. The package that bee-keepers adopt and use is the one that will please the public.

It is our fault, not the fault of the trade or of the consumer, that any sections lighter than 1½ pounds were ever put on the market. The half-pound section has been advocated, but the craft had a little too much good sense to be drawn in on that fad. I hope to hear from others on this question.

Crawford Co., Wis. HARRY LATHEP.

[The article referred to advocated bulk comb honey put up in tin boxes with fancy illustrations printed on them. It is an idea much in vogue among bee-keepers in Russia. —EDITOR.]

### Wintering Bees—Nice Weather.

My crop of honey for 1904 was 11,000 pounds. Sixty-three colonies have been in the cellar since the first day of December, and 63 are packed in wheat-straw on the summer stands, besides the 20 colonies at the out-yard packed. I had not the room in the bee-cellar for all, so I divided them by two as an experiment, or rather because I had to. I am now digging a new cellar, to be ready for another season.

We have had most beautiful weather all the fall and thus far into the winter, except two or three little cold-snaps. The last has just ended, being much the worse. Some three days of high wind, and oftentimes a blinding snow-storm with zero temperature, and for awhile 15 degrees below, made one think of "homestead" times.

The bees had a splendid flight yesterday, and a light one the day before, and it bids fair for another to-day. There are a few snow-drifts left from the recent storm.

Sioux Co., Iowa, Jan. 1. F. W. HALL.

### Poorest Season in 35 Years.

I have been familiar with the appearance of the inside of hives of bees for the past 35 years, and I never saw such poverty-stricken hives and combs after the end of July as the past season. This is a little hard on one who depends upon his bees and sale of honey as a sole income.

I have taken 450 pounds of extracted honey from 80 colonies, from extracting-supers, and the light hives need that amount, or more, distributed among them to-day. I must get to feeding in earnest. I have already fed 150 pounds of granulated sugar syrup.

WALTER HARMER.

Manistee Co., Mich., Dec. 30.

### Late Brood-Rearing—Bee-Stings—Overhauling the Hives.

Would it not be well to try to get brood reared, say as late as the last of September, so that there would be a considerable number of young bees to go into winter quarters that would not die before spring? And how can this be done?

Some one asked why there are so many dead bees in front of his hives so early in the season. Dr. Miller said he didn't know. May it not be that they died of old age? If the greater part of the bees die this way before March, brood-rearing will be delayed because there will not be sufficient bees to protect it, and the result will be weak colonies in the spring.

Of course with such full colonies in the fall more honey will be required to keep them through the winter. But what if it does take an extra frame of honey, these late-hatched bees will become producers next spring.

I notice accounts of some peculiar effects of bee-stings are given in the Journal. I read some months ago of a man who became insane from the effects of being stung. Recently I read of a man who, after eating quite freely of honey, was seized with severe cramps, from which he died.

The best local remedy I can use for stings is turpentine. Have several vials of it scattered about. Apply immediately after scraping off the sting.

Does the overhauling of the brood-chamber,

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Concerning Incubators.—There are several good incubators on the market and they are offered at very reasonable prices, in fact they are so very low that we are surprised that every family raising poultry does not have one. But there is one machine that seems to be in a class all by itself, and all on account of one feature, and a most important one, too—a removable chick-tray and nursery. After the chicks are hatched they drop into the chick-tray below the eggs, and when the hatch is all over this tray can be pulled out like a drawer and the little chicks carried to the brooder without handling. By taking out this tray the whole interior of the machine is exposed. Every nook and corner is in sight and can be thoroughly, quickly and easily cleaned. The incubator referred to is the Gem, made by the Gem Incubator Co., box 52, Dayton, Ohio. They have a new, large and profusely illustrated catalog that is free for the asking, if you mention the American Bee Journal. Send a postal to-day.



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The Novelty Knife is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible celluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle is placed the name and residence of the subscriber, and on the other side pictures of a Queen, Drone, and Worker, as shown here.

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How appropriate this knife is for a present! What more lasting memento could a mother give to a son, a wife to a husband, a sister to a brother, or a lady to a gentleman, the knife having the name of the recipient on one side?

The accompanying cut gives a faint idea, but cannot fully convey an exact representation of this beautiful knife, as the "Novelty" must be seen to be appreciated.

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when bees are working in the sections (to cut out queen-cells, for example), cause any considerable lessening of the amount of honey stored? I suspect it does. The matter ought to be looked into, for in some methods to prevent swarming there is considerable monkeying with the brood-combs.

Allen Co., Ind., Jan. 3. D. MCCARTHY.

### Golden Italians — Feeding — Long-Tongued Bees — Plain Sections.

I notice that a good many people condemn the golden Italian bees. I have one colony that is a beautiful golden in the summer-time, and it is the third swarm that issued from the parent hive. I intended to put them back, but they had a fine queen, and as they were few in numbers I thought I would let her have them and see what she would do. I hived them on two empty combs, and fed them. In a few days she began to lay, and in a short time they were a good-sized colony, and to-day they are hustling to keep up life. When the first swarm issued from this colony I took 4 frames, bees and all, from it to rear queens from. After all this she filled the 4 empty frames and the bees stored about 36 pounds of good section honey, and the swarm which issued from this colony has the hive full of honey and a good winter's supply of bees, while the parent hive filled only 24 sections. Give me all golden Italians like the 2 I have and they will gather the nectar fast enough.

I use 8-frame dovetailed hives and Hoffman frames, and have no trouble in handling the bees. The hives have handholes in the sides, which I prefer to cleats, as I can stack them up close together, so that mice, or bugs or anything of that sort can not get in them. I have a few of the old Langstroth hives, but don't like them. They are too deep and the covers too heavy.

I put supers on top of the hives for winter, and if I have to feed I fill sections with comb



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No farm is well-equipped unless it has a Tool-holder. Pays for itself in a short time.

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**DIRECTIONS.**—The Tool is fastened securely in the Holder by a set-screw and can be ground to any desired bevel by inserting the arm of the Holder into a higher or lower notch of the standard. While turning the crank with the right hand, the left rests on an steady the Holder; the Tool is moved to the right or left across the stone, or examined while grinding, as readily and in the same way as if held in the hands.

For grinding **Round-Edge Tools**, the holes in the standard are used instead of the notches.



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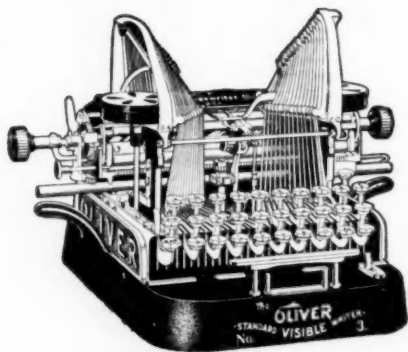
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in them with syrup, giving these to the bees. This plan has given good satisfaction. I use 1 part sugar 1 part water, and 1 part honey. I let this mixture stand for 10 or 12 hours, stirring well and warming it a little at first, so that it will dissolve nicely. When the sections are ready I lift the covers from the hives, set in as many of them as I think best, and close the hive. The bees soon get used to this and after they have been carefully handled a few times they do not fly out.

I have 2 colonies of long-tongued bees, and they are good ones. They do work on red clover, for I and others have found them working on it. With a glass we could see them putting their tongues down deep into the tubes of the red-clover blossoms. As we watched them work we could plainly see them lick the nectar out of the blossoms instead of sucking it, as a great many say they do. They may suck up syrup or honey, but they lick out the nectar first.

I have 54 colonies of bees. I have been a bee-keeper for 12 years, but have not entered into it so extensively before. In 1903 I started in the spring with 6 colonies, and put 34 into winter quarters. In April, 1904, I had 16, and increased to 54, which were in good condition for winter.

If I were to begin over again I never would use anything but plain sections, because they are easily cleaned and packed, and are neater. The holders are plain and easily cleaned and made.

I sell all of my honey at home, charging 15 cents per section for comb and 10 cents per pound for extracted. I also get 32 cents per pound for all the beeswax that I sell near by.

We are on the highest point between the Illinois River and the Mississippi, and we have lots of white and sweet clover, but the flow the past season was about  $\frac{1}{2}$  what it was the previous year.

A. N. COOKE.  
Henry Co., Ill.

### No Rain in Southern California.

Southern California is still without rain enough to do any good, and it looks now as though we are to have another dry year. Bees are still being fed, but their owners are getting a little tired of it.

G. F. MERRIAM & SON.  
San Diego Co., Calif., Dec. 19.

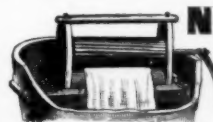
### Great Demand for Extracted Honey

I am now running 49 colonies for comb honey, but I am going to fix up 10 or 12 more for extracted honey, as the demand for this article is so great that I can not fill my orders from drip honey or from broken comb.

In 1903 I had nearly 6000 pounds of comb honey and this year I secured about 2000 pounds. Both of these years my honey was all sold before Dec. 1, and people were asking for more. I sell all of it direct to the consumers, as the store-keepers will not buy any unless it is almost given to them.

I have 49 colonies of bees in good condition in the cellar, and hope for a good season next year.

CHAS. LUEBKE.  
Rock Co., Wis., Dec. 25.



### NO DIRT LEFT

In clothes washed with the BUSY BEE WASHER 100 pieces in one hour and no hard work done. That's the record. Agents Wanted. Exclusive sale. Write for terms.

BUSY BEE WASHER CO. Box E, ERIE, PA.  
Please mention Bee Journal when writing

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Made of artificial stone. Practically indestructible, and giving entirely satisfactory results. Comb foundation made easily and quickly at less than half the cost of buying from the dealers. Price of Press, \$1.50—cash with order. Address,

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W. M. Gerrish, Epping, N. H., carries a full  
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him and save the freight.

**CONVENTION NOTICES.**

**Wisconsin.**—The Wisconsin State Bee-Keepers' Association will meet in the Supervisor's Room in the Court House, at Madison, Feb. 1, 2, 1905. All bee-keepers are invited to attend.  
Augusta, Wis. GUS DITTMER, Sec.

**Michigan.**—The Michigan State Bee-Keepers' Association will hold its annual convention Feb. 23d and 24th, at the Eagle Hotel in Grand Rapids. The Eagle Hotel is located at 65 to 71 Market St., cor. of Lewis St., one block south of Monroe St. It will give a rate of \$1.50 per day, and furnish a room free for holding the convention. The Michigan State Dairymen's Convention will meet in Grand Rapids at the same time, and advantage may be taken of this fact to secure reduced rates on the railroads. When buying your ticket, ask for a certificate on account of the Dairymen's Convention. The secretary of the Dairymen's Association will sign this certificate which will then enable the holder to buy a return ticket for one-third fare.  
W. Z. HUTCHINSON, Pres.

**4% Discount to Feb. 1st**  
on the **Best Dovetailed Hive made.**  
Cheaper than the cheapest. Circular ready to mail. Don't miss it. 200 second-hand hives for sale cheap.

**The Wood Bee-Hive and Box Co.**  
48Att LANSING, MICH.

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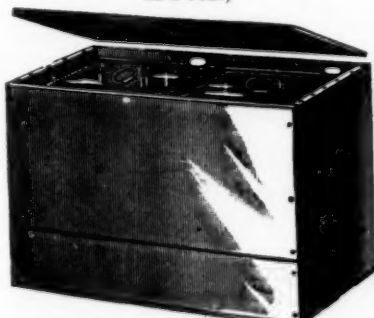
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Sample of either mailed for 10 cts. to cover  
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**C. H. W. Weber,** CINCINNATI,  
OHIO

Please mention Bee Journal when writing

**Honey and  
Beeswax**

**CHICAGO, Dec. 7.**—The market is well supplied  
with all kinds of honey; the demand is of a  
light nature. Fancy comb honey brings 14c,  
but quality as well as appearance is necessary;  
No. 1 sells at 12½@13c; off grades difficult to  
move at 10½c less. Extracted, choice white,  
7@7½c; amber, 6@7c, with off grades about 5½c  
per pound. Beeswax, 28c.

R. A. BURNETT & CO.

**BOSTON, Jan. 9.**—The market is without  
change since last writing. The demand con-  
tinues light, and supply is more than ample.  
We quote: Fancy white, 16c; A No. 1, 15c; No. 1,  
14c, with practically no demand for No. 2. Ex-  
tracted, from 6@8c, according to quality.

BLAKE, SCOTT & LEE.

**KANSAS CITY, Jan. 9.**—The demand for comb  
honey still continues light, as most of the re-  
tail dealers were stocked up on \$2.25 honey be-  
fore the holidays, two cars of which were sold  
here at that time. We look for a better market  
in the near future, and quote: Fancy comb,  
24-section cases, \$2.50; No. 1, \$2.25. Extracted,  
white, per pound, 6@6½c; amber, 5½@6c. Bees-  
wax, No. 1, 28@30c.

C. C. CLEMONS & CO.

**CINCINNATI, O., Dec. 19.**—Comb honey is now  
coming in more freely, and prices if anything  
have moderated a little. The sales made and  
prices obtained were for No. 1 fancy water-  
white comb, 12@13½c; single cases, 14c. Ex-  
tracted is sold as follows: White clover, in  
barrels, 6½c; in cans, 7½@8c; amber, in bar-  
rels, 5½@5½c; in cans, 6@6½c. Beeswax, 27c.

C. H. W. WEBER

**PHILADELPHIA, Jan. 9.**—The market is un-  
changed from our last quotations, and trading  
light. We quote: Fancy white, 15@16c; No. 1,  
13@14c; amber, 11@12c. Extracted, white, 7@8c;  
amber, 6@7c. Beeswax, 26c.

We are producers of honey and do not handle  
on commission. Wm. A. SELSER.

**CINCINNATI, Dec. 30.**—Since our last report  
was published, the price of extracted honey has  
advanced, no doubt acting in sympathy with  
the sugar market. We quote amber extracted  
in barrels at 6@6½c; white clover, in barrels  
and cans, 6½@8½c. Fancy comb honey, 13@14c.  
Beeswax, 28c.

THE FRED W. MUTH CO.

**ALBANY, N.Y., Dec. 26.**—Comb honey is mov-  
ing off very well considering the heavy re-  
ceipts and cold weather. Prices not as high  
as early fall, as usual, but very good yet.  
Fancy white, 14@15c; No. 1, 13c; mixed, 12@13c.  
Buckwheat, 11@12c; mixed, 10@11c. Extracted,  
dark, 6@6½c; light, 6½@7c. Beeswax, 28@30c.

H. R. WRIGHT.

**SAN FRANCISCO, Jan. 4.**—White comb, 1-lb.  
sections, 11½@12½c; amber, 9@11c. Extracted  
white, 6@6½c; light amber, 4½@5½c; am-  
ber, 3½@4½c; dark amber, 3@3½c. Beeswax,  
good to choice, light, 29@30c; dark, 27@28c.

Market is quiet and not noteworthy for  
strength. Although stocks here and through-  
out the interior are light, there is little inquiry,  
either for shipment or on local account. There  
is strong probability, however, that the spring  
trade will absorb the light stocks remaining.

**NEW YORK, Jan. 9.**—The market on comb  
honey is decidedly dull, and while there is no  
stock of dark and buckwheat to amount to  
much, all grades of white honey are plentiful,  
and for the present we cannot encourage ship-  
ments. We quote fancy white at 14c; No. 1 at  
13c; No. 2 at 11@12c; buckwheat at 10c. Ex-  
tracted honey is in fair demand, with abundant  
supplies and a weakening tendency is noticea-  
ble in the market. We quote white at 6@6½c;  
light amber at 5½@6c; dark, 5@5½c per pound;  
Southern at 52@55c per gallon. Beeswax, 29c.

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A. S. RENNIE, Mgr., 614 Marquette Bldg., Chicago, Ill.



## Here's what they say about our New Catalog.



If you wish to be abreast of the times send for one FREE on application.

Higginsville, Mo., Dec. 30, 1904.  
G. B. LEWIS CO., Watertown, Wis.

Gentlemen:—We have this day received your retail, wholesale and jobber's price-list, also catalog. Permit us to congratulate you on your catalog. We do not hesitate to say it is the most elegant bee-catalog ever published. We thank you for all above items of interest.  
Yours truly, LEAHY MFG. CO.

Cincinnati, Ohio, Dec. 30, 1904.  
G. B. LEWIS CO., Watertown, Wis.

Gentlemen:—We are in receipt of your new catalog and beg to say it is fine and excellent.  
Yours truly, FRED W. MUTH CO.,  
Fred W. Muth, Pres.

Hastings, Nebr., Jan. 16, 1905.  
G. B. LEWIS CO., Watertown, Wis.

Gentlemen:—Your catalog is certainly splendid and a credit to your firm. Wishing you a prosperous year, I beg to remain,  
Respectfully, CHAS. WINKLER.

Kenton, Ohio, Jan. 5, 1905.  
G. B. LEWIS CO., Watertown, Wis.

Gentlemen:—Your catalog duly received and we wish to thank you for same. It certainly is the most attractive and the easiest to understand of any that we have ever seen, and we think it will draw trade from the fact that a bee-keeper can so readily find what he wants.  
NORRIS & ANSPACH.

HAVANA, CUBA, Jan. 4, 1905.  
G. B. LEWIS CO., Watertown, Wis.

Gentlemen:—We have also received a sample of your new catalog that you have published, on which we wish to extend our congratulations; it is undoubtedly far ahead of any catalog published of its kind. We would be greatly obliged to you to have you send us 100 or 200 of these as we think our English-speaking trade would appreciate them.  
Yours truly, C. B. STEVENS & CO.

San Antonio, Texas, Jan. 2, 1905.  
G. B. LEWIS CO., Watertown, Wis.  
Gentlemen:—Your catalog is fine. SOUTHWESTERN BEE CO.

## BEE PRANKS.

We take pleasure in presenting to the public the first edition of our little book entitled "Bee Pranks". This pamphlet is compiled from clippings taken from newspapers published all over the United States, and therefore gives as nearly as possible complete and authentic daily record of common, uncommon, strange and unique happenings in the busy life of the bee during the year just passed.

The chief value we claim for the book is the undisputed fact that nowhere else will or can be found as varied a collection of interesting events in the life of this little insect, anecdotes, humorous as well as serious, mingled with practical information.

In this modern age there are few events of importance which are not chronicled in the newspapers; they seldom appear anywhere else and are read only in that section of the county local to the paper in which they appear.

At no little expense have we been able to gather together news items pertaining to the bee which have appeared in almost any and every paper published far and wide. You will agree with us many are wonderful, some sad, some humorous, but all interesting. They are not fiction, but chronicled facts.

We shall be pleased to send this book postpaid to any address for 12 cts. in stamps, or WE WILL GIVE IT FREE for the names and addresses of 5 bee-keepers in your vicinity. THEY ARE GOING FAST and this offer holds good only while they last.

**G. B. LEWIS CO., Manufacturers of Bee-Keepers' Supplies**  
**Watertown, Wis.**